The Builder.

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The Competition Question.

FROM the discussion on this matter, at the last meeting of the Institute (20th ult.), it would seem that a new question has been raised in regard to the subject, arising out of the recommendations of the Committee appointed by the Institute to consider it. One of the points recommended in the amended form of the "Suggestions for the Conduct of Architectural Competitions" was that in all large competitions there should be a double "concourse," first based upon a series of sketch designs open to any one in response to public advertisement, from among which a certain number should be chosen to compete in a more complete and finished set of drawings, the chosen competitors being paid for their labour. This principle, as we need not remind our readers, has already been acted upon in several instances, the earliest and most important one being the competition for the Manchester Town Hall. The system seemed to us calculated to do away with, or at least considerably to modify, the evils attendant on the immense expenditure of work for the mere chance of reward, which the competition system usually entails in the case of a projected building of any considerable size or importance. We say advisedly that it is "calculated" to attain this end, and that is all that can be said. If, in spite of the wording of such invitation, a considerable portion of the competitors persist in sending what are in reality finished competition drawings of the usual standard, though on a smaller scale, in the hope of cutting out, in the first competition, those who do not care to do more than the wording of the invitation calls upon them to do, it is impossible to prevent their doing this, and impossible to disqualify a competitor for merely doing better drawings than were required of him. Not only so, but the probability is that the competitor who does this will actually obtain an advantage over those who are content to send only what is asked for. He will certainly obtain more attention; it must inevitably be so; and more attention generally means a better chance of selection.

This is probably the view taken by the Leeds Architectural Society, who, as appears from the Journal of the Transactions of the Institute, have addressed to that body an emphatic protest against the proposition referred to, in a letter which was read at the meeting on the 20th ult. In the course of this letter they observe that "the burdens laid upon the profession through the system of competitions are already all but intolerable, and it would be strange, indeed, if their weight were increased by the action of those who are, or should be, interested in lightening them. The difference in labour and expense between preliminary sketch designs (so-called) and fully-finished drawings made to a reasonable scale, is so small, that to insist on a double competition, requiring both sketch and finished drawings, means simply twice the work and cost in comparison with the system the circular proposes to abolish, without bringing any corresponding benefit to the competitors. It would also open up every contest of the kind to two opportunities for the introduction of abuses to which competitions are liable."

In one sense, this is not a fair statement of the case. In saying that such a system would entail a double competition instead of a single one, the Leeds architects forget that only a selected number compete twice, and that the suggestion is that they should all be paid for their work. The system would, if adopted in the spirit in which the recommendation is framed, insure that only a small amount of work would be done by each competitor on mere chance. At the same time, we cannot but admit that practically, as far as the competitors selected for the second trial are concerned, it generally does mean something very like two sets of competition drawings for one competition, because no competitors who mean winning are ever content with mere sketches. Each devotes himself to producing as highly-finished a set of small drawings as possible, hoping by this means to cut out others who may not give themselves the trouble to make so good a show. This extra trouble, therefore, is in one sense entirely the fault of the architects, who will not be content with confining themselves to sketches properly so called, but elaborate their first sets of plans in the hope of thus securing attention. The only remedy for this must lie in the selection of judges or referees in whom the competitors would have confidence that they would consider the schemes on their intrinsic merits, without reference to the advantages they might any of them gain from show-drawing. It is impossible to define what a sketch is, and to throw out everything that oversteps that definition; nor perhaps have any two architects precisely the same idea as to what degree of work they would embody in a set of "sketch-plans." If it were understood that in the preliminary competition the selection would be influenced solely by the superior fitness of the plan, and the evidence of power in architectural treatment, furnished by the sketches, quite independent of mere finish of draughtsmanship, competitors would see the absurdity of throwing away work on elaborating their plans, and confine themselves to what was actually asked for of them. But then no one ever is sure of this; there is always the feeling that rough drawings will be behind in the running, consequently every one sends highly-finished ones. So long as architects will do this, we can only point out in extenuation of the Leeds objections, that the repetition of work in the second competition may be reduced to a smaller amount than it usually is, by limiting the number of architects invited into the second competition. As a general rule, more are invited than need be, and thus unnecessary waste of labour is produced. In most cases any competent judge would be able to select out of the preliminary drawings three, or at most four, from among which the selection must certainly be made; and to invite more than these three or four to compete again, under the mistaken idea of doing justice to the best of the others, is only doing injustice, and encouraging people to waste their time. Let the referee, or the committee with his aid, select those sketch designs which they are really conscious that they would wish to see carried out, and they will not probably come to more than four at the outside, instead of the eight who are often invited to try again. Money will be saved on one side, and time and patience on the other.

One member of the Institute, Professor Kerr, appears to throw doubt upon the possibility of determining the real capacity of a competitor by his dealing with sketch plans on a small scale, and he instanced one case in which he asserted that sketch designs had been selected produced by authors who were not competent to be entrusted with the carrying out of an important building. This may, for all we know, have been so in the case referred to, but we do not admit that it need be so. From any fairly prepared set of sketches it is surely always possible to see whether a man has a grasp of the problem, whether he has a good idea of plan, and whether he has any power and originality in architectural treatment; and it is possible, therefore, to institute a comparison between different sketch designs in regard to these points. We regard the opposition of Professor Kerr and of the Leeds Architectural Society, therefore, as rather ill-timed, and as tending to throw difficulties unnecessarily in the way of what is really the best means of insuring a good result from a competition without demanding a great expenditure of time and labour on the mere chance of success. Professor Kerr, indeed, says that he knew a case where a man spent 200*l.* on the drawings for a sketch competition. He was, we should say, a very unwise person. The remedy for this will lie, however, in the general adoption of the system of securing the services of a professional adviser in selecting the plans, and in employing for that responsible office some one who will be known to be superior to being taken in by mere prettiness of drawing, and who will look at the intrinsic merits of the sketches, whether they be rough or highly finished. As long as this is understood, we believe that the system of sketch competitions is one of the best means of doing justice to all parties. Occasions may be mentioned where it has failed; but, as a rule, its tendency is the other way.

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ON THE USE OF COMPASSES IN SCULPTURE.

IT is not of the original triangular method of three points acting together adjusted by compasses, and travelling over the surface of the work, by means of which the forms of a model are transferred to a block of marble,—a method still partially in use in Italy,—that the following brief notes treat. Neither is it the preparatory employment of the compasses by the assistant for the attainment of the general dimensions of a work which they describe; but rather their use in the hands of the sculptor himself in aiding him, first in the clay model of his statue, and afterwards during its execution and completion in marble.

The saying is attributed to Michelangelo that "the best compasses are those of the eye." We cannot, however, construe this to imply that metrical precision is to be disregarded. Architect and engineer, as well as painter and sculptor, the great Florentine's training in science would forbid this interpretation. His remark may rather be accepted to indicate that in the higher branches of painting and sculpture mere mathematical accuracy does not go far enough in guidance; but that also a spiritual essence of proportion beyond that afforded by the use of the rule and compass is needed to inform the hand so as to carry the contours of poetic form to a higher point than mere exactness could reach,—the compasses of the eye thus bearing some such relation to the compasses of mere measurement as a Court of Equity to a Court of Common Law, as a subtler tribunal to consider refinements and enhancements which might slip through the coarser mesh of more literal judgment.

In discriminating the precept and practice of this great master, it must be acknowledged that his works, both of painting and sculpture, occasionally overstep the recognised relative proportions of nature: due, no doubt, to his overpowering sense of line and force. In some of his figures he does not shrink from modifying their proportions in order to attain increased swing and vigour; which fearlessness, among other examples, is to be seen in the recumbent and sedent figures of the tombs of the Medici, in their chapel in Florence.

No one, however, estimated higher, or praised more, the sculpture of the Greeks than did this artist; and with them it is evident that truth of dimension received great attention. Few ancient statues, perhaps, will bear the extreme of minute rigid measurement; but, on the other hand, none of the Greek works of repute which have been preserved to us indulge in such liberty of proportion as is to be traced in the sculpture of Buonarotti. That strict correspondence in the measurements and dimensions of the antique is subordinated to effect, and that departures from perfect accuracy with this view are to be discovered in many cases, is worthy of note; but scrutiny and consideration will generally furnish the student with a reason for each divergence, and show that it was not the result of carelessness or want of thought. All such deviations, however, to be acceptable, must exist within small limits. Thus these reflections lead us back again to the value of truth; although, without impropriety, it may be admitted that rules of proportion, while of great force, should yet be, in degree, elastic.

In several of the antique statues in standing positions it may be observed, in order to give increased sway and action and ease to the figure, that, in each case when it rests on one leg, the thigh of the other, which is pendent, is made somewhat longer than its true comparative measurement in reference to the other. This difference of length is indeed but a slight exaggeration of what takes place in nature, not, however, to the extent in which it is sometimes rendered in art. Joints, however firmly knit, are in degree apart, or they would not be free in play and movement. Thus, when they are pressed together at the hip and knee by the weight of the body thrown on them, they come slightly closer than when the limb is free and pendent. In many of the best examples of ancient art this difference is enhanced with the view of attaining thereby greater grace and variety of line.

A similar freedom is frequently to be discovered in the treatment of the lower leg from the knee to the ankle; and among the antiques in which this increase of length of the bent leg is to be noted are the Belvedere Apollo and his sister the Versailles Diana, in both which noble works the lower portion of the limb which is thrown back measures distinctly longer that the similar portion of the other on which the weight of the body is for the moment thrown. Plainly, however, this liberty is taken for a purpose, namely to increase the stride, and enhance the effect, of the advancing action. Nothing unnatural or forced, however, appears in contemplating these statues. The above diversities are to be detected only by the application of strict measurement. The impression of these great works is perfectly satisfactory; and nothing appears in variance with Nature, and one can but agree with the judiciousness of the treatment. Which result seems in harmony with the great master's eulogy of "the compasses of the eye."

To accumulate examples of these modifications of the measurements of corresponding parts in ancient sculpture would be superfluous, for the attention of the student being called to the subject he will search them out for himself, and weigh their advantages and disadvantages. He may, however, arrive at the conclusion that a certain elastic allowance and moderate liberty of variation being accepted for the sake of effect, the more nearly accuracy of measurement is complied with, the safer is the result, as it affords that satisfaction which is the attribute of truth alone. Thus in the practice of sculpture, both in the preparation of the model in clay and in plaster, and in rendering it into marble, the compasses or calipers frequently in the hands of the sculptor may be relied on, not as superseding the guidance of the eye, but as its faithful mentor.

In respect, however, to the use of these appliances at the very commencement of a work there may be two opinions. It may seem, indeed, scarcely consistent with the first stage of inspiration. The compasses have no direct power of suggestion. No poet or artist relies on rule for the first bud of an idea, or for the first sketch of a composition. Indeed, so early a reference to it might even, in either case, tend to check the spirit of a work of imagination. Thus in a statue it may best conduce to its ultimate success to leave free its first inception; and that it should be initiated apart from the fetters of measurement, except in as far as they may be indispensable in adjusting that interior rude framework which is requisite for the support of clay models, and thus not until the motive and action have been secured, that the compasses and calipers should be called in to rectify errors of dimension, which, although not manifest in the earlier stages of a model, become painfully so as it approaches completion.

This rectification is also the more desirable because additional errors are apt to creep in with the progress of the work, during which, unwittingly, the artist in the prosecution of his idea becomes purblind to inaccuracies, and may wander away from truth even further than in his first steps. This remark may appear fanciful and overstrained to those not conversant with the adventures, perils, and complications attending art production, but will, nevertheless, find ready recognition from those familiar with it.

In the process of modelling a statue there is, as it advances, not unfrequently, a proneness towards, according as it may happen, making the bent limb thicker than the straight one, or *vice versâ*; and this has to be guarded against. It is within the experience of most sculptors that the diverse actions of limbs are apt to induce unduly unequal sizes in parts which, notwithstanding their difference of position, should correspond in length and mass. This kind of error, which is a besetting infirmity with some artists, finds its best remedy, not only in reference to Nature, but also in the use of compasses.

Even in the most refined and poetic statues this will be found to be no hindrance; but, on the contrary, superior beauty is likely to be the gratifying result of this care for truth, inasmuch as the most beautiful proportion of parts will probably lie between these two extremes of dimension; and thus the duplicate nature of the human form will, by means of the rectifying power of comparative measurement, come into the service of art in its search for elegance and refinement.

Within the mission of measurement is also, not only the keeping the dimensions of corresponding parts similar, but also the regulation of their differences. Thus, when the *torso* of a figure is bent at the waist to one side, it will be somewhat broader and thicker on the bent side than on that which is stretched, because it is less in length, and the corresponding mass has to be differently accommodated. A similar modification applies to the flexure of the limbs, which are altered in thickness by change of action; for as the muscles contract in length, they increase in thickness. This is readily tested by the hand on the biceps muscle of the arm, as that member is extended or drawn up; and the same remark applies also to the lower limbs. Even in the fingers and toes, although these are chiefly tendinous rather than muscular, analogous modifications of dimension take place as they are extended or contracted.

The bones, however, which form the framework on which all the body is constructed and supported, do not change in length by variety of position, and thus, in respect to lengths, it is safest to measure from end to end of the bones than from the prominences of the flesh. For instance, in respect to the arm in different actions: when it is bent, and in proportion as it is more bent, the distance from the top of the shoulder to the elbow increases, because the point of the elbow is at one end of one of the two bones of the lower arm, which point projects a little beyond its jointing with the lower end of the bone of the upper arm at the elbow. From this cause, when the arm is bent up, this projection goes down, and this makes the measurement from it to the top of the shoulder in this action distinctly more than when the arm is straightened, and when, consequently, this point goes up. And this change, also, is readily recognised by the hand during the alteration of the action of the arm, and the degree to which this takes place is a subject for the employment of compasses.

On the other hand, the length from the point of the elbow to the under wrist-bone remains in all actions the same, as they are but the two opposite ends of the same bone, the *ulna*; and it may be noted as a convenient comparative measurement in a statue, that this bone, in well-proportioned form, is usually of the same length as the foot, namely, that from the elbow to the wrist-bone is the same length as from the tip of the longest toe to the heel.

A variation of a similar nature to that which takes place in the measurement from the point of the elbow to the top of the shoulder in proportion as the arm is bent or extended, is to be observed in the distance from the back of the knee-joint to the point of the heel according as the foot is drawn up or pointed down; only to a degree greater in proportion as the projection of the heel is greater than that of the point of the elbow. Thus in comparative measurement it is preferable to measure from the knee to the ankle-bones, rather than to the heel, nor should such measurement, to be reliable, be taken from the patella or knee-cap, for that is the movable bone, but from the upper end of the tibia by its side, to either ankle. Thus, in considering the different parts of the human frame, it may be recognised that the aid of compasses is equally to the purpose in adjusting appropriate differences of dimension as in insuring just uniformity in parts which should be in duplicate.

In regard to the more loosely-playing bones, as the knee-cap above mentioned, and the larger bones of the clavicles and shoulder-blades, measurements have to be made from them with cautious allowance and some latitude, as they do not yield such simple and definite items for this purpose as the more closely-knit parts of the bony structure.

The above considerations in respect to divergence from uniformity under change of position in portions of the general form otherwise in correspondence, also apply to some changes which take place in the face. In theory we may accept that the human face, if viewed exactly in front, and without the head being turned either towards the right or the left, may have its form and features precisely, to use the artistic term, "in drawing"; that is, exactly corresponding in measurement in all respects, although such perfect parity is rarely to be found in nature. Nevertheless let it be granted, when the head is exactly upright and straight on the shoulders and not turned in any degree to the right or left, that it might be so represented without detriment to its look of natural ease. Nevertheless, on the other hand, immediately the head is turned even slightly either way this perfect correspondence of sides vanishes, which change must be taken account of in representing it in art or an unnatural stiffness of appearance will be the result.

Were it possible that the intelligent and

lively features of the human face were composed of some rigid material, this change could not take place, but, constituted as the visage is of pliable and elastic flesh, it is motive, not only by expression, but by alteration of position, to which at once it adapts itself. Whenever, therefore, the head is turned on the neck to either side a similar amount of substance of cheek and features has to be accommodated on that side within a diminished space as has to be extended on the other side to an increased one; so that a distinct difference between the two sides of the face is the result, and not only does this affect the form of the cheeks, but also of the mouth, causing its two sides to vary; and this modification of form extends in a lesser degree, even to the wings of the nose and the lower surroundings of the eyes, insomuch that the whole contour of the two sides of the face is thrown out of parity; and if this be not allowed for in art, especially in sculpture, a want of appearance of life and ease will be the consequence.

The attention which these details of Nature received from the sculptors of classic days may be recognised by the eye, and tested by compasses; as in the familiar examples of the Apollo Belvedere and the Medicean Venus, in both of which statues, the heads being turned on one side, the contours of the two sides of the face are modified accordingly. It is not necessary to multiply instances, but similar considerations have more or less guided the treatment of all the finest antique statues and busts.

The above remarks, although possibly they may have some interest with the general reader as noting facts of Nature which lie out of the path of usual observation, are, as matters of actual measurement, addressed to the student of sculpture, their subject forming part of those considerations which enter into his province to investigate and act on: not only in the preparation of the clay model, but afterwards in the completion and refinement of his statue in marble, which it is his legitimate dream of hope that it may last for ages.

In the higher poetic and epic class of sculpture, it may be taken for granted that the sculptor's devotion to his art will not allow the last stages of his marble statue to be the work solely of his assistants, but that he will himself also take a large part in the actual manual workmanship of it in a sincere and loving spirit. In this finishing of his creation, the compasses are faithful critics, and should be ever close at hand to give advice as his tools execute. Such care can have no disadvantages; but, on the contrary, will conduce not only to the reasonableness and truth of his work, but also to its beauty and excellence.

Precision of measurement will not, by itself, make a fine statue; but, at the same time, it is a safe axiom that a fine statue can scarcely exist with any great divergence from it. Mere exactitude will not ensure beauty; but wide departures from it are open to great doubt; and it is evident that, while no exception can be taken to scrupulous accuracy, perceptible deviation invites objection. The literal precision of a mechanical lay-figure will not achieve the harmonious proportions of a beautiful statue, but if a modification of measurement be pleaded for in certain cases it should, at least, be for some evident and sufficient reason and well-advised purpose.

In the above observations no mention has been made of the recognised proportional measurements of 7, 7½, or 8 heads for the whole height of the figure; nor of various other serviceable details of the ratios of classic form. These are fully afforded by Vitruvius, Leonardo da Vinci, Flaxman, Gibson, Bonomi, and other honoured authorities, and are accepted and in use by all sculptors. The limited province of the foregoing notes has not been dissertation on these well-founded theories, which would have been superfluous, but has been confined to some consideration of the practice of measurement by the eye and compasses in furtherance of their application to the process of sculpture; principally by comparison of the changes made in corresponding parts by difference of action. Such as they are, these remarks are not the offspring of speculation but the result of many years of handicraft with the modelling tool and chisel.

At the Royal Institution on Friday, the 24th ult., Mr. Chubb exhibited, in action and explained, the new patent electric time-lock, a very marvellous yet simple piece of mechanism.

RIVER CONSERVANCY AND PROTECTION FROM FLOOD.

THE "BUILDER" AND THE INSTITUTION OF CIVIL ENGINEERS.

An influential deputation, consisting of representatives of many of the largest towns in the country, and including eight members of the House of Commons, had an interview, on the 22nd of March, with Mr. Dodson, at the Office of the Board of Trade, in order to urge on the Government the importance of legislation with regard to the conservancy of our rivers. Mr. Dodson explained that it was only by full discussion in Parliament that the imperfections of the Bill now before the House could be explained or remedied, and that "it was impossible to grapple with these different points until they got into Committee."

At the very time when the deputation was thus engaged, a little pamphlet on the Conservancy of Rivers had just been issued, in anticipation of the Quarterly Volume of the Minutes of Proceedings of the Institution of Civil Engineers, which certainly throws more light on the main questions of River Conservancy than any other work in the language with which we are acquainted. It would have been of no small utility, on the one hand, to Mr. Peel and the members of the deputation, and on the other hand to Mr. Dodson, and the members of the Cabinet, to have read this pamphlet with attention.

To none will the contents of the little book have more interest than to the constant readers of the *Builder*, for they will have the satisfaction of seeing those great primary principles, of the importance of which we were for so long the only exponents in the press, fully accepted and admitted by what may be called our only jury of experts. The little pamphlet contains (1), a paper on the rivers of the Eastern Midland district of England, by Mr. W. H. Wheeler; and (2), one on the valley of the Irwell, by Mr. A. Jacob. To these papers, special in their application, we need not further refer. But the debate which ensued upon the reading, and which occupied the greater part of two evenings, has unusual value. Some thirty engineers, familiar with river hydraulics, including one Italian, one German, and three Frenchmen of eminence, took part in this debate. The subject was thus approached from the point of view illustrated by foreign experience, as well as by home practice, or want of practice. The speakers, however, were unanimous in their declaration of the cardinal importance of the principles which we have so long enunciated. No meddling with a river can be expected to be of any utility unless under two conditions:—(1), the whole watershed district must be under the control of one supreme authority; and (2), a hydrographic survey of such watershed district is an indispensable preliminary to any useful work within its boundary.

The general outcome of the debate, further, was to the effect that any merely permissive Bill must run a great risk of aggravating existing evils. Mr. Rawlinson said that the various Acts of Parliament in existence relating to rivers, canals, harbours, and docks numbered about 4,000. Mr. Abernethy said that the great defect in our river management was due to divided jurisdiction. General boards, composed of men selected, irrespective of local influence, and having control, not only over rivers, but over their affluents, appeared to his experience demanded by the necessity of the case. Mr. Dawbarn "had arrived at the conviction that the difficulties connected with the removal of the evils of flooding were not so much engineering difficulties as difficulties arising from the want of legislative facility for constituting right governments over the rivers. In many districts the proper course had been known for years." The Nene is a case in point. Mr. Giles, confirming Mr. J. C. Hawkshaw, cited the case of seventeen boards of control existing in a small district about Lincoln. Mr. Martin pointed out that the provisions of the Government Bill would lead to "a state of things similar to that which had been described as so injurious on the Witham and Fen districts, namely, a multiplicity of conservancy authorities and districts, each having jurisdiction over a part only of the river basin, each more or less jealous of its neighbour; without cohesion, and without knowledge of, or consideration for, the general interests of the river basin considered as a whole." Mr. J. W. Barry said that "on the river Hull there were no less than five drainage districts, a navigation commission, a court of sewers, and a corporation, all claiming jurisdiction in some way over the river. The result of the conflict of authority was, that nothing was ever done to the river; it was never cleaned out; it was never regulated; weeds were allowed to grow; and people were allowed to put obstructions in it. At a distance of only two miles and a half from the mouth of the Humber, the low-water line of spring tides was 15 ft. higher than in the Humber itself, and at a distance of one mile from the mouth it was 9 ft. higher; and nothing was done to improve the river." Mr. Bateman said that "the conditions of riparian owners,—those who lived on the high lands, and those on the low lands,—were so various and antagonistic one to the other that it would be exceedingly difficult to bring any river basin into such a condition that all parties would agree to the adoption of a particular system by which the floods might be reduced."

So unanimous and unhesitating a consent as to the truth of the great principles on which we have so long insisted, renders it unnecessary to say more on this point. The difficulty of dealing with our rivers is not an engineering difficulty; it simply arises from want of unity of system and unity of control. We are thus led to say a word as to that vexed part of the subject on which we have hitherto been silent, viz., the area of land rateable to the cost of river improvement. As to this we have said nothing, from the wish first to obtain an assent,—such as is now accorded by the Institution of Civil Engineers,—to the first principles we laid down. But now this question of rating comes to the fore. Not only so, it is probable that it is on this that the fight will take place, and that, in all probability, the opposition to any truly efficient Bill will be successful.

As to this, then, we think it can hardly be denied that to attempt a general determination of the principle of rating as a preliminary part of reform is to put the cart before the horse. The conditions of the various river districts vary so widely that what would be a fair distribution of rating in one case would be manifestly unjust in another. Each watershed has not only to be engineered, but to be rated, on principles appropriate to itself. The first thing then needful, as we have all along said, is the survey. With the survey of a district in hand, any competent engineer would be able at once to point out the proper rate of incidence of the cost of conservancy as divided between upland, midland, and marshland. Without such a survey, no one can attempt to indicate the proportion with any justice. But as the cost of the survey is a part of the cost of the conservancy, there will be here a vicious circle, unless the State steps in, and in the first instance undertakes the cost and responsibility of the necessary surveys (which, in fact, are only extensions of the Ordnance map into proper detail), the cost being either borne by the nation, or refunded by the locality hereafter, as Parliament may decide.

Thus again, by another but a natural road, we come back to the fact that an adequate hydrographic survey of each river district is a necessity preliminary to any wise legislation, not only as regards the work to be executed for the conservancy of the river in question, but also as regards the consideration of the rateable proportions in which the lands lying at different levels lying within that area should contribute to effect their common advantage and safety. It is worse than waste of time to debate how a thing should be done before we know what it is that we ought to do.

THE FRENCH AND FLEMISH EXHIBITION.

The twenty-ninth annual exhibition at the French and Flemish Gallery opened this week. Two of the prominent places are occupied by works by Professor Müller, one of which, "An Almée's Admirers" (62), shows this remarkable and powerful painter at his best. This painting represents a group of Arabs regarding with what may be called "stolid interest," if such a contradiction in terms be admissible, the dancing of a woman in the centre of the group. The painting is one of uncompromising realism, in one sense; no attempt is made to render graceful even the dancer, who is thick-waisted and unattractive, and the figures who regard her are sinister and cadaverous; but an

air of high art is thrown over the whole by the breadth of style and the forcible treatment of light throughout. The dancer is inspired by the sounds of two outlandish-looking instruments of the fiddle tribe, played by two musicians squatted on the ground. Herr Müller's other work, "An Arab Home" (17), might pass as an illustration of the proverb,—"Home is home, be it never so homely." It is certainly very homely in this case; but here again the style is the redeeming quality, and gives high interest to a mean and squalid subject. The other two centre pictures present a curious contrast. One is a mystical work, "The Annunciation" (115), in which a Syrian girl, of very sweet features, beautifully painted, kneels on a house-top with a bridal veil floating behind her, and receives the message from a watery-looking and figureless angel who floats in the air before her. The kneeling woman is as figureless as the angel; the one point in the picture is her face. The fourth work alluded to is one of M. Bastien-Lepage's big pieces of realism, "Un Mendiant" (159), a large canvas whereon is represented a sturdy beggar in the act of pocketing the dole given him from a cottage, from the half-closed door of which a little child is looking on the beggar with a sweet face of interest and compassion which the object of it does not seem to merit very much. The rest of the canvas,—a large square one,—is taken up with the wall and the white window-shutters of the house, and other uninteresting details, enclosed in a very elaborate frame covered with realistic foliage in relief, and apparently designed expressly for the painting. The work is, in fact, a magnified *genre* picture, and as such occupies more wall space than its intellectual interest is worth, and might as well have been painted on a much smaller scale with equal and, perhaps, better effect.

Among the best contributions to the collection are those by Herr Anker. In his two principal works, "Physic without Faculty" (9), and "His Custom of an Afternoon" (90), we are struck by the fine feeling for colour displayed, and also by the great attention given to the composition of the groups, a matter which, in the over-tendency to realism in the present day, is often much neglected. The group on the right, in the first-named work, formed by the mother and two children, falls into a complete harmony of lines, evidently carefully studied, and yet having the effect of spontaneous impulse. The same harmony and repose of line are seen even more completely in No. 90, where an old man dozes in an armchair with a child on his knee; the repose of the whole is perfect. If the colour in this be compared with that in Kauffmann's "A Disciple of Paganini" (87), it will be observed how it is possible to make out of the dingy garments of poverty something pleasanter and richer in colour effect than the cold dingy browns which are constantly repeated by Herr Kauffmann and other painters of the same school. The value of composition is negatively illustrated, again, in the child subjects of M. Dargelas (22, 50), in which the figures are dotted over the canvas in a jagged manner which is uncomfortable to the eye; they have sufficient relation to each other in their actions, but they do not group happily.

Among other things there is a beautiful little bit, by Israels, "The Evening of Life" (146), which is just a title for a small interior with a figure. "The End of the Day," by Jusles Breton (25), is not a first-class specimen of the painter, it is not very good in colour, though the heads are expressive; "The Gleaners," by Laugée (166), is a more successful work of the same class, in which it must be admitted, however, that the inspiration is drawn from Breton. There is a capital figure in Capobianchi's "Le Tir à la Cible" (3), that of the lad holding the bow, in a picture otherwise rather feeble and not very harmonious in colour; it is a Pompeian interior. "A Musical Jury,—Eighteenth Century" (41), by L. Jimenez, is another study of a special period, very clever in some of the heads, but painted in the hard spotty manner which has been adopted by this artist: the screen behind the jury, by the way, is out of perspective. "At Tréport" (151), by E. Van Marcke, shows fine painting of horses, cattle, and boats in a style having much of the finer qualities of Cuyp, with more power and breadth of manner.

"Tide coming in, Boulogne" (61), by Th. Weber, is a work which might suggest questions to some of our sea-painters as to the tone of the sea. We have here the same kind of full and loaded painting of water which is so effective in the hands of at least one distinguished English sea-painter, but we have it accompanied by tones which certainly are nearer the actual realistic tone of sea water breaking on sand than what is sometimes offered to us as such in our own exhibitions. The interest of landscape is specially centred this year in the works of C. Heffner, who has several paintings in the principal rooms, and a collection of studies upstairs. Of the finished paintings much the finest is "On the Banks of Lake Starnberg" (49), an expanse of shallow water under a bright sky, bordered by flat country, the perspective extent of which is beautifully made out. The other large work, "The Last Glint before the Gloaming" (82), is less successful, the left-hand portion at least of the painting is hard and toneless. Among the studies upstairs many impress us with the same quality of hardness, though there is very forcible and brilliant work among them. One of the finest in colour and texture, a small view of the "Thames at Maidenhead," left a curious impression of topographical inaccuracy, the Thames being made to appear like a straight canal. Among other landscapes are the usual snow pictures of Munthe, a fine broadly-painted "View near Stockholm" (48), by W. de Gegerfelt, "Forest Labour," by E. Hallatts (16), "A Norwegian Lake" (114), by A. Wahlberg; and in a retired corner an exquisite "Idyll," by Corot (31), gives a glimpse of the romance of landscape-painting, the work of an artist who literally gave us poetry measurable by the square foot.

THE MUNICIPAL GOVERNMENT OF PARIS.*

THE management of the highways and the byways of the city forms, it can be understood, an important part of the duties of the Paris Municipal Council, comprising the paving, macadamising, and asphalting of the side walks and roads, the piercing of new and the levelling of old thoroughfares, their sweeping, watering, and lighting, and the due regulation of the various vehicles that circulate in the city. In 1877 something like 6,000,000 of square mètres or yards superficial were paved in Paris, and some 2,000,000 macadamised, the French macadamised roads not differing much from our own except that they are, as a rule, broader. For the side walks, those paved with granite, the city refunds to the householders a third of their expense, but only a sixth for asphalte pavements, but, once laid down, the city undertakes their maintenance. In a former article reference was made to the *voirie* of Paris: under this head are included a large number of important municipal matters. These may be mentioned as follow: the creation of new thoroughfares and their plan; the purchase and sale of property, and the drawing up of estimates; according concessions and permission for building; and the supervision of all new erections, the maintenance in healthy condition of all houses, examinations of encroachments on thoroughfares, the numbering of dwellings, and the inspection of the quarries which undermine Paris. It will be seen that in many points the French system resembles our own. The builder of every house has to consult before commencing work the municipal plans, and all encroachments have to be duly authorised; the height of buildings is not allowed to exceed 20 mètres (65 ft. 6 in.),† the superficies of all interior courtyards is regulated by law. Wooden constructions are authorised in exceptional cases alone, and the establishment of all privies and closets is submitted to the severest administrative rules. The administration has it always in its power to inspect all old houses and to oblige the owner to execute any necessary repairs, or even close a house; the privies can only be opened to be emptied and shut, after a visit of a special municipal officer; unhealthy dwellings can be closed if incapable of being rendered habitable. The façades of all the houses have to be cleaned once every ten years.

The maintenance of the public thoroughfares figures on the budget of 1879 for some 7,500,000 francs (300,000*l.*), to which must be added hard upon another 1,000,000 francs, for new pavements, 1,500,000 francs for the maintenance of the side-walks, which, with the 500,000 francs paid to the *employés*, brings the total up to about 10,500,000 francs (420,000*l.*), a sum a third of which is paid by the State, and in a small proportion by the gas and water companies. Admirably as Paris may be said to be now paved, there still exist many streets but ill-paved and lighted, a fault which lies literally at the doors of the owners of the houses, unable to pay the necessary expenses. The city, however, gives ample facilities for payment by instalments, and in time we may expect the streets of the whole capital to be in the same admirable order as its leading thoroughfares.

The watering, sweeping, cleaning, and removal of refuse from the streets is the duty of a special set of men and women (not the broken-down gangs of workhouse pensioners used in England), most of whom work for half a day, that is, from three or four o'clock in the morning (according to the season) till ten, the streets being very properly swept every morning before the mass of people are out of bed. The *personnel* counts some 3,120 men and women,—these latter excellent workers; they receive 1 franc 20 centimes; the men 1 franc 50 centimes to 1 franc 75 centimes, recently augmented by 2 centimes an hour. The road-menders are paid by the month,—105 francs to 110 francs the foremen, 86 francs to 90 francs the men; 5 francs being kept back for the savings-banks and 2 francs for the retiring pension.

The Paris streets are largely watered by means of a movable hose which screws on to the fire-plugs, some 2½ millions of square yards being thus watered, it being found to cost half less than with the watering-carts, of which some 350 are employed, and water a surface of some 6,000,000 square yards. How is it, it may be asked, that we have not yet introduced the use of the hose? The removal of the dust, again, is one of those excellently organised systems we may well envy our neighbours. Each day the dust-cart calls, before nine o'clock,—such a barbarity as a dust-hole is unknown in Paris,—and the house refuse is removed; the work is confided by tender to a dozen or so contractors, the expense to the Municipality being about 700,000 francs (28,000*l.*). The sweeping and watering cost 5,500,000 francs (220,000*l.*), a large number of poor and deserving people being employed, who faithfully perform the duties so ill-executed in our capital, where dirt lies for days, and pieces of unsightly paper strew every thoroughfare.

Paris, once one of the worst lighted cities in the world, is now admirably supplied with gas and electric lamps. Our space does not allow of any historical survey of the advances made: one or two dates will amply suffice. In 1774, 800 lanterns were ordered to be lighted; six years later, 2,200; in 1797, 4,112; it was not till 1824 that gas made its appearance in Paris (Pall-mall was lighted with gas as far back as 1807, so Cunningham tells us). There are now some 40,000 to 50,000 lamps in the city, the expense being calculated at hard on 6,000,000 francs (240,000*l.*), but Londoners would grumble sadly at the amount which Parisians have to pay for their gas bill. Monopoly rules triumphant, though electricity promises now to somewhat re-establish matters.

As eminently connected with the public thoroughfares, a few words may be devoted to the omnibuses of Paris. The company enjoys a monopoly, but under certain conditions. One of these is noteworthy. In case of frost, the company is called upon to furnish the city for the removal of snow and ice, and to strew sand, so necessary with asphalted roads, fifty carts a day, each with two horses and a driver; and since the introduction of steam fire-engines, the omnibus company furnishes for 4,000*l.* annually the horses, harness, and drivers necessary in cases of emergency. By the terms of the agreement, the invariable price within the city walls of all omnibuses is fixed at 15 centimes (less than threehalfpence) for the outside places, and at 30 centimes for the interior. This is not the place to describe the organisation of the omnibus company; suffice it to say that we Londoners may well envy the Parisians the cheapness, regularity, and rapidity of their omnibus service, its well-arranged and numerous waiting-rooms, the politeness of the conductors, and the comfort especially of the more newly-constructed carriages.

In the matter of taxes on the entry of provisions, Paris stands behind London, though, let it be remarked, it is alone by these levies that so many of the expenses are paid; but in the matter of providing markets for the distri-

* See *Builder*, p. 212, *ante*.

† By the law of 1872, the height of the houses in a street is regulated by its width, as also the slope of the roof.

bution of food, Paris takes the lead, perhaps, of all cities in the world. In addition to its famous *Halles Centrales*, each neighbourhood is supplied with a market, an ample diminutive copy of the great central market; in no way more wisely than this has the city of Paris expended during past years its many millions of francs. London would be spared much of the inconvenience of street cries, the public would be better served, the burden of trade lessened, could district markets be more liberally supplied. In return for the millions of francs,—some five millions sterling,—which the city receives from its town dues, a careful inspection is exercised, and fraud and adulteration strictly watched. The erection of new and the enlargement of old markets, and innumerable minor matters, entail a large yearly expenditure. The Entrepôt de Bercy, the great bonded warehouses for wine, will shortly be entirely rebuilt at an immense expense; the *abattoirs*, or slaughter-houses, of La Villette, together with the erection of the Halles Centrales, involved, it can be imagined, an enormous outlay, but the expense was justified perhaps more than any other made by the city as a measure of public hygiene, and from the services these great works rendered in providing the capital with an ample supply of the first necessities of existence.

The Charity Organisation of Paris (*Assistance Publique*) is, as can be supposed, an important item in the municipal budget. While the task of the present day is eminently to facilitate work, to encourage thrift, and prepare the coming generation by a good general and technical education, there is a sad amount of misery to assist, and the municipality of Paris is no less generous in the work of charity than our own great corporations. There are members of the council who have even wished that less might be expended on beautifying the capital, and not only that more be devoted to the assistance of the poor, but that this assistance be of a more intelligent character. It is a task beyond our power to summarise the various points of the charity organisation of the Paris municipality; the question finds itself, unfortunately for our neighbours, complicated to a great extent by religious difficulties, it being urged that the whole matter should be placed solely in lay hands. The traditions of the past are struggling hotly with the reforms and facts of the present; and there is justice in the complaint that while the superb establishments for the relief of the poor which are shown to the stranger astonish him, the fact none the less remains that out of a population of two millions the number of relieved poor is over 113,000. A million sterling figures on the budget for charity, half of which the Paris municipality have to pay, and yet this sum is miserably insufficient for the purpose, while its distribution shows, on inquiry, sad abuses, the butt of endless attacks and complaints on the part of the public, and in the Municipal Council itself.

The expenses connected with education amount in the Paris budget to some 12,000,000 of francs, hard on half a million sterling, a large number of scholarships being accorded in the municipal "Collège Rollin," and in the other schools scattered over the city; this sum is wisely divided between the different schools of design and decorative art, the apprentices' schools, travelling expenses during the holidays for prize boys, for gratuitous education, savings-banks, &c.; the income being only 2,500,000 francs, the expense to the city is yearly hard on 9,500,000 francs. Awaiting the day when instruction will be rendered obligatory in France, the Paris municipality is working hard in this direction; new schools are being opened in every direction, and the methods of instruction are constantly undergoing improvement, with a view to preparing serviceably the future generations. The great question of technical education has been approached, and a school on the Boulevard de la Villette has been founded, as also one in the Rue Tournefort. Talent is encouraged by bursaries and scholarships, holiday excursions for prize boys paid for by the municipality being an innovation that deserves mention. The infants' schools, the municipality admit, have not yet received their requisite development, but time will effect reforms. There remain to mention the fifty-three special schools of design, and twelve others for geometrical drawing which exist in Paris independently of the drawing lessons given in all the boys' and girls' schools, and the two "superior" schools, resembling the Government School of Decorative Art in the Rue de l'École de Médecine which will shortly be, if they are not at present actually, established, one in the Place des Vosges, the other in the Rue aux Ours Sewing and dressmaking lessons are given in the girls' schools; special schools of design are each year subsidised by the municipality. The women are not neglected, five book-keeping classes being at present open to them, and the Municipal Council subsidises a number of other professional schools for women; strange to say, schools of cookery are not known.

To those whom figures may interest, we may observe that the financial resources of Paris are numerous. In the first place come those most heavy and most unreasonable of all taxes the town-dues (*octroi*), which, falling principally on the food of the people, only await some substitute to be abolished for ever. Iniquitous as is this tax, weighing so particularly on the poor for their provisions, light, and heat, it produces an income to the municipality of over five millions sterling, a tax being levied on nearly everything that passes through the gates. In one year alone, that of 1877, the item of building materials brought 13 millions of francs (!) into the municipal exchequer. A million sterling (in the budget of 1879) is entered as accruing from *impositions spéciales*, which many Englishmen would indeed consider impositions, but which have cheerfully to be borne by the Parisians, who, for their gay capital, find they have the piper to pay. The water company pays 400,000*l.* to the municipality; the gas company, 340,000*l.*; the markets bring in 280,000*l.*; rates from the *voirie* department, 240,000*l.*; 180,000*l.* are taken from the rent of cab-ranks, &c.; 120,000*l.* from the slaughter-houses; sweeping rates, 100,000*l.*; from the schools another 100,000*l.*; from the rent for sheds in the bonded warehouses, 80,000*l.*; from the cemeteries, 80,000*l.*; from the utilisation of the sewage, 60,000*l.*; from the various municipal properties, 50,000*l.*; the Bois de Boulogne, with its wonderful lakes, ice-houses, cafés, restaurants, villas, pasturage, &c., brings in alone the little item of 160,000 francs (6,400*l.*); the circuses, theatres, restaurants, panorama, café-concerts, and Palais de l'Industrie, in the Champs Élysées, no less than 134,000 francs (5,360*l.*); divers receipts enter for 40,000*l.*; the rent from kiosks, advertising-columns, letting of chairs on the boulevards, and in the parks, 80,000*l.*, not a small portion of which is paid for by the *cafés* on the great boulevards for the right to cover a portion of the broad pavement with the little tables which give to the streets of Paris so characteristic an appearance; from burial fees, 34,000*l.*; from gun licences and fines, 25,000*l.*; permission for building, 24,000*l.*; from public weights and measures, 14,000*l.*; stamp taxes, 10,000*l.*; sale of old building materials, 8,000*l.*; and last on the list, accruing to the budget of 1879 from legacies and other private sources, 6,769 francs, or little over 270*l.*, a humiliating sum for so large a city as Paris, but this is one of the features of the principle adopted by the municipality of Paris; the private charity which is exercised so generously in England, is left by the public in France to the State or the Municipal Government.

Against the receipts the expenses have to be placed, and they are large; we have mentioned most of the principal items in the course of our paper, the total amounts to hard on 8,000,000*l.* sterling. Such, hastily sketched out, is the working of the Paris municipality.

INSPECTORS OF NUISANCES.*

A NEW profession, or calling, came into the world ten years ago. There was no long struggle before it was generally acknowledged; for it was ushered into existence with all the pomp and circumstance of an Act of Parliament, and at once enjoyed the widest official and scientific consideration. This new vocation is the profession of sanitary inspection. As our readers are aware, the Public Health Act of 1872 divided England and Wales into sanitary districts, and required the appointment of a staff of officers in each of them, including an inspector of nuisances, and straightway every mile of country was placed under the surveillance of these new guardians. In time to come sanitary knowledge will be sufficiently consolidated to permit of public competitive examinations for the numerous posts thus created. At present, however, this new profession is open to all comers, and the post is not always properly filled.

From Plantagenet times there has always been an effort to assist in the preservation of the public health by legislation. In those remote days, unfortunately, the sources of disease were but little known: consequently, though some measures were taken, they were few and feeble. A condemnation of measled pork was one of the earliest sanitary enactments. Edward II. decreed that any butcher who sold swine's flesh measled should be fined for the first offence, pilloried for the second, imprisoned and fined for the third, and expelled from the town for the fourth. Richard II. took early notice of nuisances in the form of filth cast into ditches or rivers, or in any place near a city, borough, or town. He decreed that any one casting garbage anywhere to the annoyance of other people should be called by writ before the Chancellor, and, if found guilty, be punished at his discretion. Henry VII. enacted that no butcher should kill in his scalding-house, or within a walled town, Cambridge, Carlisle, and Berwick excepted. The question of overcrowding was taken into account by Queen Elizabeth's ministers. A law was passed in the reign of that sovereign lady setting forth, "No owner or occupier of any cottage shall place or willingly suffer any more families than one to cohabit therein, in pain to forfeit to the Lord of the Leet ten shillings for every month he so continues them together." The Great Plague caused many enactments to be made for the benefit of the public health in the matter of the prevention of the spreading of infection; and the Great Fire was the cause of various regulations respecting the laying-out of London streets and lanes, the sewerage, drainage, and building of houses upon a better sanitary basis. Later on, in the reign of James I., search was authorised to be made in shops, cellars, warehouses, and any other suspected places for spices and drugs ungarbled. There were regulations made for bakehouses; and, as years passed by, sanitary measures were more frequently considered and more vigorously undertaken.

Early in this century town after town obtained an Improvement Act; and in 1848 a Public Health Act was passed that applied to all England and Wales. This was succeeded rapidly and successively by a Common Lodging-house Act, the Diseases Prevention Act, the Removal of Nuisances Act, the Local Government Act, a Bakehouse Regulation Act, the Sanitary Act, a Workshop Regulation Act, the Artisans' and Labourers' Dwellings Act, an Act to amend the Law for the Prevention of Adulteration of Food and Drink and of Drugs; and the complication was still further increased by the Public Health Act of 1872, mentioned above. Eventually an Act was framed in which every question concerning the preservation of the health of the inhabitants of England and Wales was considered and consolidated, and the former Acts were repealed, with the exception of a few sections. It is this comprehensive Public Health Act of 1875 upon which the inspector bases his operations.

The sanitary matters coming under the care of these new guardians of the public health are of a varied nature. The sewerage and drainage of houses and streets occupy a foremost place. A vigorous look-out for all offensive collections, including accumulations in ditches and manure-heaps, forms a second branch of the subject. The superintendence and organisation of the scavenging and cleansing of streets, alleys, courts, and roads, is a third duty. An intelligent and constant attention to the water supply is a fourth. A frequent inspection of common lodging-houses and cellars, to see that all the regulations made to maintain a decent and sanitary condition of things in them are conformed with, is a fifth duty. The examination of houses unfit for human habitation as a preliminary to their condemnation, is a sixth variety of duty. Infectious diseases and the disinfection of houses, clothing, and bedding, give rise to quite another line of action. A surveillance of factories and workshops, the management of slaughter-houses, the inspection of food exposed or offered for sale, are further duties the inspector is called upon to perform. To preside over all these matters in a district more or less large requires a considerable amount of resource and method, and a general acquaintance with all sanitary knowledge, old

* A Practical Guide for Inspectors of Nuisances. By F. R. Wilson. London: Knight & Co., 90, Fleet-street. 1881.

and new. Every district is permitted to make its own by-laws for its own regulation; consequently, looking from one part of the country to another, there is to be noticed, here and there, a startling elasticity of opinion as to what constitute rigid sanitary requirements. Nevertheless, it is certain the general stock of information thus acted upon is gradually shaping itself into an agency for good. More exactness will bring more stringent limits into these by-laws; for the present, the indefiniteness thus admitted must be passed over.

The inspector, in effect, takes up a position similar to that formerly occupied by the guard at the gates of a town. He has to see that nothing comes into his district that can militate against the health of the residents with as much vigilance as was exercised by the guard in the days of old to ensure the personal safety of the inhabitants. In addition, he has to see the earth is not cumbered with filth in improper places; that the air is kept pure by the removal of all noisome accumulations, unnecessary smoke and exhalations; and the water kept free from all contamination, either from infiltration, sewer gases, indoors or out, or defilement by noxious discharges, or cattle, or mischievous persons. Fresh air and pure water have been considered of the foremost consequence; but, recently, a conviction has been pressed forward that the nature and condition of the spot of earth we live upon, and its surroundings, are matters of great moment. Particulars have been gathered together which tend to show the soil has its influence on the food produced on it; the food has its influence on the health of those who partake of it; and height and bulk of individuals depend in great measure upon the conditions thus produced. Again, a soil that retains the rainfall has been found so frequently in situations where diphtheria has raged that investigators are beginning to take for granted it is one of the causes of this visitation. A decrease of consumption has been found to result from drainage; and much good is expected to arise from a more complete and extended system. It may be asked what control an inspector can exercise on soil. Here the efficacy of law, or by-laws, comes in. Subject to the approval of the Local Government Board, an authority can issue regulations requiring the drainage of all sites used for buildings and streets, a perfect system of sewerage, damp-proof courses to all new houses, and so on; when it becomes the duty of the inspector to see they are carried out to the letter and in the spirit.

The inspector has to investigate the particulars of many grievances and complaints. Now, a countrywoman will inform him that her cottage is "fair stinking," in consequence of a pool of water at her door made by the stoppage of the drain used in common with a next-door neighbour; or that the water supply, which is a tiny rill, perhaps, in the corner of a distant field, is scantier than ever; or that her neighbour's pig is kept so close to her house as to be a nuisance; or the droppings of feathers from her neighbour's pigeons choke the spoutings of her house and make the foundations damp. Now, a countryman will ask him whether his neighbour has any right to heap up his ashpit so near his house that the odour from it should pervade it; or place his haystack where it darkens his windows; or whether the village butcher should kill his sheep so close to his back door as to be offensive; or the village baker use an ash-midden adjoining his bakery. Now, a town-dweller will complain that the moisture from his neighbour's cow-byre soaks into his house; that a neighbour's midden is overflowing; that neighbours throw their slops into the road and cause damp; that a neighbour is turning his house into a common lodging-house, and thereby encouraging all sorts of characters to come about the place; that a gale has blown his roof off, and his landlord delays to put it on again; that a storm cundy has overflowed and the waters penetrated into his kitchen; that there is an unaccountable smell all through his house; that a family is ill of fever close by; and so on. All these complaints are, properly, entered in a book, and reported at the first meeting of the Sanitary Authority. Where remedy can be applied, the inspector is instructed to take the measures that are necessary. When the grievance is capable of adjustment by arrangement with either landlord or neighbour, this course is recommended. And gradually all the difficulties are overcome. In the ten years that have elapsed since the passing of the Act, a great stride has been made in the public appreciation of sanitary constructive works. Much of the violent opposition to all improvements has toned down. Most towns have set themselves in some kind of order. The great drawback of expense has been overcome. Numerous villages that were without water, save private supplies from wells to some of the houses, have gladly welcomed the small rate that has brought some distant hillside spring to their doors. Many villages, too, that were defaced with open gutters, full of objectionable matters, have been at the expense of laying down covered pipes, by means of which the unwholesome sewage is carried harmlessly away. All new buildings, on the remotest hillside, in the narrow close or wide street, from the smallest cottage to the finest residence, benefit by the general regard for sanitary improvements as set out in the local regulations.

Altogether the new profession gives evidence of a vigorous vitality. It has its association, its serials, its handbooks, and guidebooks. The most recent work is "A Practical Guide for Inspectors of Nuisances," by Mr. F. R. Wilson, in which is set forth much information valuable to those who are new to their duties. Without encroaching on the duties of surveyors, many instructions are conveyed concerning small constructive works that are likely to be placed in the charge of an inspector, by virtue of the General Order, which states that "He shall, if directed by the Sanitary Authority to do so, superintend and see to the due execution of all works which may be undertaken under their direction for the suppression or removal of nuisances within the district." Specifications are inserted of works that have been executed in laying down water-mains to villages, and sewage systems in limited localities, and the useful suggestions made by the Local Government Board as to water-supplies and sewerage are included. Mr. Wilson, who has acted as inspector for the Rural Authority of the Union of Alnwick since the formation of the office, gives details from his own experience, which are calculated to serve as warnings and precedents, and shows the bearing of the Act upon the various contingencies with which the inspector has to deal. Numerous sanitary contrivances and inventions are also duly mentioned in his comprehensive manual.

THE SOCIETY OF BRITISH ARTISTS.

The fifty-ninth annual exhibition of this Society opened this week, and it may be conceded that an exhibition which has attained so respectable an age must have done so by fulfilling some public want in regard to art, but what that want can be the present exhibition, at least, does not enable us to understand. The water-colour collection, as usual, shows the best average of any room in the exhibition, the number of water-colour painters who rise to or above mediocrity being probably greater in proportion to the total number than in the larger and more widely-worked field of oil-painting; and the hanging space being smaller may also lead to the necessity of a somewhat more exclusive selection. It is a pity the committee do not shut up one or two of the other rooms, if that would enable them to adopt a little more stringent rule of selection; and if they would get rid of one or two of their members by a vote of censure, there might be a better chance of obtaining for their exhibition more respect. As it is, there are paintings hung on the line, and the work of members, which are simply beneath any sort of criticism, and are little short of an affront to the spectator.

The few works which form redeeming points are chiefly by a few contributors whom we have noticed in previous years as better than their surroundings, and some of these are not members. Mr. Aumonier, for instance, contributes a landscape (500), and Mr. Couldery a cat-picture (342), which represent, of course, some of the high qualities of these artists in their respective classes of subject, though not showing either of them at their best. Mr. Jas. Hayllar, who is one of the members who has claims to exhibit in better company, has a clever picture representing "Preparations for the Harvest Service" (441), and another, "The Highest Bidder," which we seem to have seen somewhere else lately. There is freshness and movement in Mr. Edwin Ellis's "Morning after the Storm" (453), a sea-painting of some force though we cannot quite accept the painter's idea of this tone of sea-water under any atmospheric conditions. One or two large landscapes by Mr. Grace are, as usual, pleasing without showing much power; his small work, "An Autumn Sunset" (466), is much superior to the larger ones. There are some good heads in the large painting, "Polly my Wife, and Polly my Ship," by Mr. Symons, which hangs at the top of the large room. Mr. Wyke Bayliss contributes an interior of "St. Madelaine, Troyes" (132), and one or two other architectural subjects in his usual effective and highly-finished style, which sometimes errs on the side of over-elaborated effect, having more of art than nature. Among those which we noted as above the average may be named "The Village Barber" (126), by Mr. John Burr; 122 (no title), still-life in the shape of a skull and a book, &c., by Miss M. Eley; "A Little Mother" (133), Miss Lizzie Reid; "Sunlight" (160), Mr. John R. Reid; "The First Lesson" (166), Mr. Ansty Dollond; "Azaleas" (186), Miss Catharine Wood; "A Lobster Fisher" (218), Mr. J. J. Bannatyne; "Moel Wyn" (224), Mr. James Peel; "Poor Pasture" (336), Mr. Yeend King; "A Storm" (396), Mr. John R. Reid; "On Hampstead Heath" (407), Mr. J. H. Mole; "Kept in" (451), Mr. A. Dixon; "Near Barrow-on-the-Trent" (473), Mr. Jas. Peel; and "The Palace of the Cæsars" (742), a Roman sketch, by Mr. A. B. Donaldson.

THE KENSINGTON ARTISTS.

Long before South Kensington was in existence and became famous as an art district, royal and secluded Kensington, the Kensington of Queen Anne and of Thackeray, was a favourite home for the artists; since the days when Wilkie was a conspicuous resident the painters have always clustered about the quiet Kensington Gardens, the cedars of the Palace, and what was then called the Gravel Pits; painters endeared to old frequenters of the Royal Academy exhibitions, lovers of modern art still living who remember the days at Somerset House and later on in Trafalgar-square, when Mulready and Creswick, Wilkie, Egg, the Chalons, Frith, Ward, Cope, Redgrave, Cooke, Horsley, and we know not how many more, formed the set of Kensington artists. Those were the days when the traditions were still to some extent kept alive of the time when it was almost Freemasonic etiquette for the more famous artists to keep secret the subject of their forthcoming exhibits at the Royal Academy, though already the custom was introduced of a limited set being invited to visit a few, a very few, popular artists' houses—the word "studio" had not come into vogue,—on the Sunday afternoon previously to the reception of the pictures on the traditional Monday and Tuesday either at the beginning of April or the end of March, two days having, by some strange condition in the constitution of the Academy, been considered for a century as sufficient time for the reception of the several thousand pictures "sent in" for selection. In Paris, at the *Salon*, which opens its doors on the same day as the Academy, more than a fortnight of the month of March is appropriated for the reception of the pictures (the sculptors have three weeks), and the Parisians certainly succeed in hanging with, it must be admitted, excessive fairness a number of pictures which exceeds by many hundreds the exhibition of the Royal Academy.*

Of late years in London, as all those interested in art are aware, the great artists have opened towards the close of March their splendid studio doors more or less freely to their admiring and opulent friends, for the purpose of showing the pictures that are expected to be exhibited at Burlington House in May. To many persons these visits have afforded a very great pleasure; and certainly, years ago, it was difficult for a lover of art to find a more agreeable way of passing an afternoon. But of late these picture-receptions have assumed a somewhat different character; they have become crowded exhibitions of social celebrities, the people visiting the studios, and the studio itself appearing to rival the attraction of the pictures exhibited. Wearied artists have more than once expressed displeasure at the apparent want of interest that many of their guests have shown in the real object of the visit. Whether or not that be so, or that, large as our painters' studios have become, they

* The *Salon* catalogue of last year contained 4,366 numbers; that of the Royal Academy, 1,571.

are still too small to receive the crowd of art-lovers that appear now to be descending upon us, or whether it be for other reasons equally uncertain, this year, at least in the Kensington district,—a wide artistic area,—a few of the artists have shown a desire to avoid the inconvenience of the customary visit to their studios, and they have inaugurated what, even in these days of apparently exhausted exhibitions, may be called a novelty. It had been some time understood that the Kensington painters,—for we do not hear of the sculptors and architects taking any part in the idea,—had this year determined to exhibit at the Kensington Town-hall their Royal Academy pictures previously to their being "sent in," and it was supposed by not a few that the exhibition was to take, in a measure, the place of the studio show. The list of "contributing artists" was characteristic, the name of the President of the Academy, Mr. Millais, and a number of other prominent Kensingtonians, Academicians, promised a treat. It was, therefore, to some of the guests at the *conversazione* of Friday evening last, not a little disappointing to find that the more familiar names were alone represented by pictures that have long since been exhibited. Mr. Millais's "Beef-eater" and several other contributions were "old friends." Apart from this little disappointment, the gathering was eminently successful. Artistic Kensington was represented in its most characteristic residents,—Mr. Ansdell, Mr. Archer, Mr. Barlow, Mr. Boughton, Mr. Barwell, Sig. Baccani, Mr. Vicat Cole, Mr. E. H. Corbould, Mr. Chester, Mr. A. Donaldson (who contributed two charming reminiscences of Florence), Mr. Bird (the energetic honorary secretary of the whole affair), Mr. Fildes, Mr. Horsley, Mr. Alfred Hunt, Miss Havers, Mr. Hicks, Mr. Colin Hunter, Mr. Lehmann, Henry and Albert Moore, Mr. MacCallum, Mr. Poynter, Mr. Prinsep, Mr. Redgrave, Mr. Marcus Stone, Mr. Newton, and a number of others. Of the pictures we must be excused any criticism, the "old friends" have before run the gauntlet; of the new acquaintances it would be unfair, on so slight an introduction obtained in a crowd, to form an opinion.

The *conversazione* was what all Londoners have long since become accustomed to, and in virtue of the usual crowd and the guests present was, we suppose, what may be called a conspicuous success; the difficulty of seeing the pictures being at least characteristic of many similar entertainments.

Some think that this system of exhibiting pictures previously to their being shown at the Academy may in future years with good management become an institution, and certainly, judging by the visitors of Friday and Saturday, it promises to reach that point that, whatever artists may say, they are most in search of,—very great popularity. Perhaps we shall see at Kensington in future years, probably at Bayswater, at St. John's Wood, at Hampstead, at Lambeth, and at Bethnal-green, similar pleasant gatherings.

But, after all, we fancy our Parisian brother artists adopt the best method; their two artistic clubs, the Merlitons and the Crémerie,—there have been additions to their number lately,—supply an opportunity for the early exhibition of the pictures of the season, all of which are *bonâ fide* novelties; and we think our artistic clubs would do well to emulate their Continental brethren in this matter; they have ample room, and the subject of art, whatever the cynics may say, is exceedingly engrossing, even in these days of political and sporting interests, art combining, like sport and politics, quite sufficient commercial importance to make the subject worthy the consideration of the seriously-minded.

The Memorial to Lord Lawrence.—The memorial to the late Lord Lawrence, the gray granite pedestal of which is now in position in Waterloo-place, consists of a bronze statue 8 ft. 6 in. in height in a standing position, with a drawn sword in one hand. Below, on the bronze base, are the words, "Will you be governed by the pen or the sword?" and the inscription, which, for the present, is hidden by a wooden hoarding, on the pedestal is as follows:—"John, first Lord Lawrence, Ruler of the Punjab during the Sepoy Mutiny of 1857, Viceroy of India from 1864 to 1869. Erected by his fellow-subjects, British and Indian, A.D. 1882." The work has been executed by Mr. J. E. Boehm, A.R.A., and the bronze figure has been cast at the foundry of Messrs. Moore & Co., of Thames Ditton.

MORE ABOUT THE BUILDING EXHIBITION.

THIS Exhibition, now open at the Agricultural Hall, Islington, was very largely attended during last week, 30,000 persons, we are told, having passed the turnstiles. The attendance this week promises to be even larger. Our readers who have not yet visited the exhibition may be reminded that it will close this Saturday, April 1st. We supplement the lengthy notice which we gave last week by the following further notes.

Bricks, Tiles, Terra-Cotta, &c.—In Bay 21, the Wortley Fire-Clay Company exhibit upwards of a thousand glazed bricks, walled. They are excellent bricks, possessing a very pure and clear white glaze. At Stand 89, Mr. Thos. Lawrence, of Bracknell, has on view some good specimens of carved panels in red brickwork. The "orange pressed facing bricks" here shown appear to be very good. Very well worth special examination are the machine-made malt-kiln tiles exhibited by Messrs. Stanley Bros. (Stand 86). They are of fire-clay, well fired and yet perfectly free from warping, and are perforated in a very beautiful and ingenious way. Messrs. Joseph Cliff & Sons enamelled fireclay bricks, in various colours, are very good in finish and remarkably true in shape. The "Paragon Bay Windows," shown by the Paragon Brick and Tile Company at Stand 83, are worth attention. The columns of the bay are built up with blocks (only four or five of which are required to make a column), instead of with bricks, as in the ordinary manner.

Chimneypieces, &c.—Messrs. W. Walker & Sons, of Bunhill-row, have, at Stand 64, an excellent display of oak and walnut chimneypieces, most of them good in design, and all of them characterised by excellence of workmanship. This firm have the largest show of wooden chimneypieces in the exhibition. Messrs. Underhill & Co., Stand 48, show a large number of chimneypieces, good as to material and workmanship, but some of them too exuberant in design. Some of the dining-room chimneypieces, however, are very good, and altogether the Stand is well worthy of attention. In Bay No. 12 Mr. Alfred Braby has a large display of marble and enamelled slate chimneypieces, as well as marble lavatory-tops, &c.

Stoves and Warming Apparatus.—The "Westminster" slow-combustion, smoke-consuming grate, exhibited by Messrs. Steven Bros., at Stand 45, deserves examination. It has a bottom formed of a slab of fireclay, which is kept just above the level of the hearth, so as to allow of the cold air of the room passing beneath it into a hollow iron-box or chamber behind the fire-back, whence it is directed through a horizontal slit into the fire, just at the point needed to assist combustion. Some good specimens of electro-bronzed stoves are exhibited by this firm. Messrs. Underhill & Co. (Stand 48) have a useful assortment of stoves and grates, including the "Sovereign Eclipse" tiled register. Messrs. Messenger & Co., of Loughborough, exhibit the "Loughborough" boiler, for warming horticultural and other buildings.

Ventilators.—The Sanitary Engineering and Ventilation Company, of Victoria-street, Westminster, exhibit, in action, at Stand 112, the "Æolus" or water-spray ventilator (Mestern's patent). With a consumption of water equal to forty gallons per hour, very useful work is done in distributing cooled, cleansed, and moistened air at the rate, we are informed, of 10 000 cubic feet during the same period of time. We understand that experiments have shown the attractive force of the water-spray to be such that air is sucked into the apparatus (which is exceedingly simple and unlikely to get out of order) at a velocity which can be varied at pleasure from a minimum of 150 lineal ft. per minute to a maximum of 500 ft. per minute. When the condition of the atmosphere does not require the use of the water-spray, the ventilator introduces fresh air in vertical currents in the same manner as the ordinary vertical-tube ventilators. By means of a gas-burner the temperature of the inflowing air can be raised in winter time. The "Æolus" appears to be well adapted for use in theatres and public buildings, and for smoking and billiard rooms. It should certainly be seen by all visitors to the exhibition. Mr. Edgar Aldous exhibits, at Stand 156, a hot and foul air extractor, of which he is the inventor and patentee. The theory of its action is this: the exhaust consists of two concentric shafts. Between the inner and outer shafts is a space for foul air to pass upwards. There is a fixed head, divided into wedge-shaped compartments or apertures, to receive the wind from whatever quarter it may be blowing. At the back of these apertures are holes through which the wind is deflected into the inner concentric shaft, which is carried down for 12 in., 18 in., or more, according to the size of the apparatus. This inner concentric shaft is provided with a conical or, rather, egg-ended bottom, against which the wind blowing down through the apertures in the head impinges, and is deflected upwards for a short distance to find its exit through other apertures nearly at the bottom of the inner concentric shaft, and so creating an up-current in the space between the two shafts which form the exhaust, and into which space exhaust-tubes from the various rooms of a house can be led.

Sanitary Pottery.—We can speak of only a few of the exhibits under this head. Besides drain-pipes, Messrs. James Stiff & Sons (Bay No. 20) show the "Weatherly Disconnector Waste-water Trap." It possesses many advantages as a gully-trap. Weaver's "Ventilating Sewer-air Trap," shown by the same firm, affords a simple means of shutting off sewer gas from the house-drain. Another very good trap is the registered "Interceptor" sewer-air trap, for fixing between the house and the sewer. The Wortley Fire-clay Company (Bay 21) exhibit Jackson's patent water and gas-tight joint in stoneware tubes. It is a modification of the spigot and socket joint, but when the pipes are put together ready for the joint to be made, an annular space is left all round between the spigot and the collar. This annular space is filled up by pouring into it, through a hole left at the top of the collar, liquid cement of the consistency of thick cream, the spigot and the interior of the collar being grooved to form a key for the cement, none of which can escape into the interior of the drain. It appears to be a very good joint, and will be looked at with interest. Messrs. Doulton & Co., at their stand in the centre of the hall, exhibit a variety of sanitary pottery, including Lovegrove's and other traps, and the "Kenon" air-chambered floor for basements. Messrs. T. Smith & Co. (Bay 25) have a large variety of stoneware pipes, traps, and hoppers. Messrs. Joseph Cliff & Sons, Wortley (Bay 23), have some excellent baths, sinks, troughs, mangers, and other large-sized vessels, each made in one piece of fireclay, and enamelled inside. For cleanliness and appearance nothing could be better than these exhibits, which, especially the baths, are not so heavy as is usually the case. Messrs. Shanks & Co. (Bay No. 9) exhibit a very good glazed fireclay sink, suitable for butlers' use.

Kitcheners and Ranges.—Messrs. Clement Jeakes & Co. (Bay No. 15) are important exhibitors of ranges, pastry-ovens, &c., suited for large or small establishments. They are also exhibitors of washing-machines, hydro-extractors, and other apparatus for use in laundries.

Iron Railings, Gates, and Balconies are shown in various forms, for the most part well designed, by the Coalbrookdale Company (Stand 38). The castings are all very good.

The Bower-Barff Rustless Iron is shown at Stand 115, in various articles. Difficulties which have hitherto stood in the way of the adequate working of the process have now, we are informed, been removed, and it is hoped that this preservative process will soon be largely adopted.

Corrugated Iron in its various applications as a material for the erection of temporary buildings is shown in the South Gallery, by Mr. J. Charlton Humphreys, of New Bridge-street; also by Messrs. Treggon & Co., at Stand 60.

Silicate Cotton, or slag wool, is shown by Messrs. Frederick Jones & Co., at Stand 97, also Baatsch's patent slag felt (manufactured from silicate cotton), for sound-proofing floors and partitions, and for preventing the radiation of heat and the spread of fire. By the same exhibitors is shown Stewart's "Cotton Metallic Pipe-casing," claimed to be fire and frost proof. In this connexion we may also mention Leroy's patent non-conducting composition for coating steam boilers and hot and cold water pipes, shown at Stand 25. It has been largely used.

Water-Fittings.—Messrs. Hayward Tyler & Co. exhibit in Bay 16A a varied selection of hydrants, standposts, stop-valves, branch-pipes, and connexions, suitable for fire-extinguishing purposes. They show some steam and hot-water valves and cocks, pumps for deep and shallow wells, and some excellent bath and

douche valves and lavatory fittings. They have also on view a neat arrangement of tip-up lavatory basins on light iron standards and with marble top. Their full-flush valveless closet and flushing-apparatus have been previously noticed by us as possessing some good points. Messrs. Quirk, Barton, & Co., have, at Stand 24, their tin-lined lead pipe, also tin-lined sheet lead for cisterns, &c. The advantages afforded by these materials are obvious. Messrs. R. F. Dale & Co. (Stand 131) show their "Southwark" ball-valve, their safety-tap for preventing the explosion of kitchen boilers, and plumbers' brasswork generally, all characterised by good finish. Messrs. Doulton's water-waste preventers and water-locking apparatus for baths, as well as other things of the kind exhibited by them, well merit attention and use. Messrs. John Bolding & Sons (Stand 14) also show some excellent water-fittings and plumbers' brasswork. Messrs. John Warner & Sons, at their stand in the South Gallery, have a good selection of pumps, plumbers' brasswork, and bath and other fittings, all characterised by the excellence for which the name of the firm is a synonym.

Penstocks, tide-flaps, manhole-doors, ventilators, and other details connected with sewerage works are shown by Messrs. G. Waller & Co., of Southwark (Stand 26). Here also are to be seen Shone's house sewage ejector, a complete set of drain-cleaning tools, and a useful iron dust-bin, made on the same principle as, but differing in shape from, the "street orderly" bins used in the City.

Water-closets and Drawn-lead Traps.—Messrs. John Warner & Sons, whose stand is in the South Gallery, have some very good valve-closets, as well as pan-closets with earthenware containers. They also exhibit a ship's water-closet, for discharging below water-line. Messrs. George Farmiloe & Sons (Bay 19) are exhibitors of water-closets and American drawn-lead traps for closets, baths, and sinks. Mr. Henry Conolly (Stand 47) is an exhibitor of improved valve closets with overflow basins, water-waste preventers, and other goods of the kind which deserve attention.

Pneumatic Bells, Despatch Tubes, and Speaking Tubes, are shown by Mr. Zimdars at Stand 65. The pneumatic despatch tube is provided with a "carrier" for letters or other papers desired to be conveyed from one part of a building to another, and is, indeed, on the same principle as the pneumatic tubes in use by the Telegraph Department of the Post Office. The speaking-tube shown at this stand is worth attention. The trumpet-mouth at either end, when not in use, is fixed into a sort of catch. By the act of liberating one end of the tube in order to speak through it, a pneumatic bell is rung at the other end of the tube, to give notice to the person in the room where it is placed that some one desires to speak to him. In the same way as at the other end he releases his end of the tube ready to listen and reply, the act of releasing his end ringing a pneumatic bell at the opposite end, and thus intimating his readiness to be spoken to.

Spence's Metal.—This useful material, to which we have on former occasions made reference, is shown at Stand 82 in some of its varied applications. Its artistic and decorative capabilities are shown in numerous busts and statuettes, and in panels in relief for cabinets, chimneypieces, &c., some of the busts, however, would appear to better advantage if allowed to remain untouched by the bronzer. The green bronze applied to the features in some of the specimens gives them (especially by gaslight) a somewhat ghastly appearance. Joints made of this material in socketed and flanged gas mains by the workmen of the South Metropolitan Gas Company, are also shown, and the material is now being used for the joints of scrubbers and other gas-making apparatus. For use instead of lead for fixing iron railings into stone it is well adapted. It claims to be 75 per cent. cheaper than lead, and is much more easily used.

Glass of every description for building and decorative purposes is shown at Stand 75 by Messrs. John Hall & Co., of Marylebone and Bristol.

At Stand 60A Messrs. Meakin & Co. exhibit their convenient and safe sash fastener and opener (which automatically locks the window whether the latter is left open or closed), and their new "solid frame oilable sash-pulleys," with large bearings, for heavy sashes. These are well worth examination.

Among other exhibits which deserve the attention of visitors is the Mangotsfield stone (Blue Pennant), shown at Stand 133 by the Mangotsfield Pennant Stone Company. This stone is largely used in Bristol and other towns in the West of England for kerbing, flagging, and street crossings. It is nearly as hard as granite, but does not wear so slippery. The "Instantaneous Grip" vices shown by Mr. T. J. Syer at Stand 93 are also worth attention.

We are glad to hear that H.R.H. the Prince of Wales and some other members of the Royal family intend visiting the Exhibition this Friday, the 31st of March.

ELECTRIC RAILWAYS.

At the Royal Institution, on Friday, the 24th of March last, a lecture on this subject was delivered by Professor W. E. Ayrton, F.R.S. In the course of it the lecturer said,—To propel a train we must either utilise the energy of coal by burning it, or use the energy possessed by a mountain stream, or the energy stored up in chemicals, and which is given out when the chemicals are allowed to combine, or we must employ the energy of the wind. Practically we employ at present only the first store for propelling railway trains,—the potential energy of coal; and that is to a great extent the store on which we shall still draw, even when we employ electric railways. For experience shows that, with the modern steam-engine and dynamo, at least one-twentieth of the energy in coal can be converted into electric energy; and that this is at least twenty times as economical as the direct conversion of the energy of zinc into electric energy by burning it in a galvanic battery. But it may be asked, did not Faraday's discovery, in 1831, that a current could be produced by the relative motion of a magnet and a coil of wire, settle this point half a century ago? Theoretically, yes; practically, however, the problem was very far from being solved, because the dynamo-machine was very unsatisfactory, and it was not until Pacinotti, in 1860, solved the problem of obtaining a practically continuous current from a number of intermittent currents, and until Gramme, about 1872, carried out Pacinotti's idea in the actual construction of large working machines, that the mechanical production of currents became commercially possible. [Experiments were then shown illustrating the complete electric transmission of power, a gas-engine on the platform giving rapid motion to a magneto-electric machine, and the current thereby produced sent through an electro-motor at the other end of the room, which worked on an ordinary lathe.] In electric transmission of power there is not only waste of power from mechanical friction, but also from electric friction arising from the electric current heating the wire, through which it passed. It was then explained and demonstrated experimentally that this latter waste could be made extremely small by placing so light a load on the electro-motor, that it ran nearly as fast as the generator or dynamo, which converted the mechanical energy into electric energy; actual experiments leading to the result that for every foot-pound of work done by the steam-engine on the generator, quite seven-tenths of a foot-pound of work can be done by the distant motor. One reason why electric transmission of power can be effected with so little waste is because electricity has apparently no mass, and consequently no inertia; there is, therefore, no waste of power in making it go round a corner, as there is with water or with any kind of material fluid. Another reason why electro-motors are so valuable for travelling machinery is on account of the light weight of the motor. Experiment shows that one-horse power can be developed per 50 lb. of dead weight of electro-motor; a result immensely more favourable than can be obtained with steam, gas, or compressed-air engines.

In addition to the loss of power arising from the heating of the wires by the passage of the current, there is another kind of loss that may be most serious in the case of a long electric railway, viz., that arising from actual leakage of the electricity due to defective insulation. To send an electric current through a distant motor, two wires, a "going" and "return" wire must be employed, insulated from one another by silk, guttapercha, or some insulating substance; and if the motor be on a moving train, there must be some means of keeping up continuous connexion between the two ends of the moving electro-motor and the going and return wire. The simplest plan is to use the two rails as the two wires, and make connexion with the motor through the wheels of the train; those on one side being well insulated from those of the other, otherwise the current would pass through the axles of the wheels, instead of through the motor. It is this simple plan that is employed in Siemens's Lichterfelde Electric Railway, now running at Berlin; the insulation arising from the rails being merely laid on wooden sleepers having been found sufficient for the short length, one mile and a half. The car is similar to an ordinary tram-car, and holds twenty passengers. [Photographs were then projected on the screen of this and of the original electric railway laid by Siemens in the grounds of the Berlin Exhibition of 1879, and exhibited in 1881 at the Crystal Palace, Sydenham.] It was explained that on this latter railway, which was 900 yards long, both the ordinary rails were used as the return wire, and that the going wire was a third insulated rail rubbed by the passing train. [Photographs were then projected on the screen of Siemens's electric tram-car at Paris, used to carry fifty passengers backwards and forwards last year to the Electrical Exhibition.] In this the going and return wires were overhead and insulated, connexion being maintained between them and the moving car by two light wires attached to the car, and which pulled along two little carriages running on the overhead insulated wires, and making electric contact with them. [Experiments followed, proving that although two bare wires lying on the ground could be quite efficiently employed as the going and return wire, if the wires were short and the ground dry, the leakage that occurred if the wires were long and the ground moist was so great as to more than compensate for the absence of the locomotive.] Consequently, Professor Perry and myself have for some time past been working out practical means for overcoming these difficulties, and we have arrived at what we hope is an extremely satisfactory solution. Instead of supplying electricity to one very long not very well insulated rail, we lay by the side of our railway line a well-insulated cable, which conveys the main current. The rail, which is rubbed by the moving train, and which supplies it with electric energy, we subdivide into a number of sections, each fairly well insulated from its neighbour and from the ground; and we arrange that at any moment only that section or sections which may be in the immediate neighbourhood of the train shall be connected with the main cable, the connexion being, of course, made automatically with the moving train. As, then, leakage to the earth of the strong propelling electric current can only take take place from that section or sections of the rail which may be in the immediate neighbourhood of the train, the loss of power by leakage is very much less than in the case of a single imperfectly-insulated rail such as has been hitherto employed, and which, being of great length, with its correspondingly large number of points of support, would offer endless points of escape to the motive current.

Dr. Siemens has experimentally demonstrated that an electric railway can be used for a mile or two. Professor Perry and myself, by keeping in mind the two essentials of success,—viz., attention to both the mechanical and electrical details,—have, we venture to think, devised means for reducing the leakage on the longest railway to less than what it would be on the shortest.

For the purpose of automatically making connexion between the main well-insulated cable and the rubbed rail in the neighbourhood of the moving train we have devised various means.

When we commit the carrying of our power to that fleet messenger to which we have been accustomed to entrust the carrying of our thoughts, then shall we have railways that will combine speed, economy, and safety; and last, but not least to us Londoners, we shall have the entire absence of smoke, the presence of which nearly causes the convenience of the Underground Railway to be balanced by the pernicious character of its atmosphere.

Artisans and Labourers' Dwellings Improvement Act, 1879.—The Home Secretary has appointed Mr. Robert Collier Driver (of the firm of Messrs. Driver & Co., of Whitehall) the arbitrator in the Great Peter-street, Westminster, Improvement Scheme.

A MODEL THEATRE.

THE Committee of the Hygienic Exhibition held this year at Berlin have decided to open a competition for designs for a Model Theatre. As prizes for the three best solutions of the problem they offer a total sum of 8,000 marks. The designs are to be sent in not later than midday, August 5, 1882. The conditions to be fulfilled in the model theatre are described in the programme as follows:—There are to be seats for 1,700 persons, exclusive of a certain amount of standing-room. While ample corridors, *foyers*, wardrobes, and buffets are to be provided for the audience, the *personnel* of the stage and orchestra are to have the following apartments for their accommodation,—a general assembly or sitting-room for the orchestra; six dressing-rooms, each for one person of the professional staff; six larger ones, for from two to six persons each; and six still larger, for from twenty to thirty persons each, including choristers and supernumeraries. Near the stage there are also to be a conversation-room, and three rooms for practice and rehearsals. There are likewise to be provided in the building, dwelling apartments for a housekeeper, and rooms for the acting and stage managers, for a medical man, and for the library. Store-rooms or magazines are to be provided, capable of containing 100 sets of decorations, besides furniture, wardrobe, and other stage properties. Suitable accommodation is likewise to be found for the lighting-apparatus, the watchman, and the stage workmen. The lighting of the theatre is supposed to be by gas, but the arrangement is to be such that electricity may be readily substituted without serious building alterations. The heating-apparatus is to be capable of producing a temperature of about 59° Fahr. for the staircases, vestibules, and corridors; about 64° for the auditorium, stage, and adjoining parts; and 68° for the dressing-rooms, when the cold outside, in the open air, is as low as 4° below zero. As regards ventilation, the arrangements must be such as to render it possible to introduce 25 cubic mètres of fresh air per head of the audience per hour, and as much as 35 cubic mètres in case of excessively hot weather. The air in the stage division is to be renewed twice an hour, and to be capable of being kept tolerably cool in the excessive heats of summer.

Along with the drawings the committee also require a description showing how the audience are to pass in and out of the house, and the time within which the auditorium can be cleared without danger. The space to be allowed per head of the seated audience is fifty centimètres in breadth and thirty in depth. The rate at which the stream of persons leaving the house is calculated to move is to be proved from the form, gradient, and general construction of the passages and exits. The committee adds that it attaches much more weight to the satisfactory solution of the questions of safety raised by the recent calamities at the Nice and Vienna (Ring) Theatres than to the other architectural details.

THE LATE MR. ROBERT H. SHOUT, ARCHITECT.

ON the 15th ult. death removed this earnest but modest worker in the field of art. During the past eight or ten years Mr. Shout had been afflicted with a malady which incapacitated him from following his profession, to which he was much attached. He was articled to the late William Tress; commenced practice about thirty years since in the West of England; and resided successively in Bristol, Sherborne, Yeovil, and Dorchester. During the twenty years he was in practice, he was actively engaged in the restoration and partial rebuilding of many of the small churches in Somerset and Dorset, and in the erection of parsonages, schools, farm buildings, cemeteries, and residences in that district. The painstaking restoration of the fine Perpendicular church at Yeovil attracted much attention. The new parish church at Evershot, the cemetery at Yeovil, and the recast of Mr. Messiter's mansion near Yeovil, are amongst the best of his works.

He numbered amongst his clients the late Earls of Ilchester, Lord Digby, and Lady Fane, and was constantly engaged by many of the resident gentry in carrying out additions and improvements to their residences, farms, &c. His last work was the erection of a large set of farm buildings and residences at Horsington, Somerset, for Mr. Doddington.

His buildings were designed with great care, and mostly carried out with Ham Hill stone, a material to which he was very partial on account of its rich, warm tint.

Mr. Shout was buried in Brompton Cemetery on the 21st ult.

BRICK-COURT, MIDDLE TEMPLE.

THE gradual demolition of buildings in the Temple cannot but be a matter of regret to the antiquary, the architect, and the man of letters, and although their destruction may be sought to be justified upon the ground that they have outlived the purposes for which they were originally intended, it is difficult to avoid the conviction that their removal is prompted by other reasons, and that the wholesale re-building is a pretext to lessen the apparent income receivable from a gigantic monopoly, and an attempt to conciliate the rich at the expense of the poorer members of the community.

The next locality marked for obliteration is Brick-court, an open area out of the west side of Middle Temple-lane, bounded upon three sides by three blocks of chambers, the central block backing upon the buildings on the east side of Essex-court.

The houses are four stories in height, and are brick-built, with plain square window openings, with wooden sashes nearly flush with the external face of the wall, and stone pedimented doorways, one in the centre of each block. There is an entire absence of pretension about the design, but it conveys an impression of repose and solidity which is seldom attained in the present day, and the absence of which is distinctly felt in most modern architecture. The five houses (the northern block being divided into two) are all of a similar character, with the exception of the house No. 3, which has a bold wooden cornice at the top, of good design. This house was re-built in the year 1704, apparently after having been destroyed by fire, as is attested by the following inscription upon a stone tablet over the entrance doorway:—

PHŒNICIS INSTAR REVIVISCO
MARTINO RYDER ARM°
THESAURO
ANO. DOM. 1704.

They may therefore be fairly considered to be "Queen Anne" houses. The staircases are of oak, with moulded balusters and handrails of pleasing design. On the party-wall between the houses Nos. 4 and 5, Brick-court, at the level of the top floor, is a large sun-dial, with the inscription, "Time and tide tarry for no man," one of those that Charles Lamb apostrophised, "What an antique air had the sun-dials, with their moral inscriptions, seeming co-evals with that time which they measured."

"In No. 2, Brick-court, Middle Temple-lane," says Peter Cunningham, "up two pairs of stairs, for so Mr. Filby, his tailor, describes him, lived and died Oliver Goldsmith. His rooms were on the right hand as you ascend the staircase."

Leigh Hunt says that Goldsmith had a first floor elegantly furnished at 2, Brick-court; but this seems to be a mistake. Here he died, and here, while on his death-bed, the landing of his lodgings was filled with inquirers not always of the most reputable character, whom he had befriended in the time of his late and short-lived prosperity.

The success of Goldsmith's comedy of the "Good-natured Man," by which he netted about 500*l.*, led the author into all kinds of extravagance. "The shabby lodgings with Jeffs, the butler," says Irving,* "in which he had been worried by Johnson's scrutinity, were now exchanged for chambers more becoming a man of his ample fortune. The apartments consisted of three rooms on the second floor of No. 2, Brick-court, Middle Temple, on the right hand ascending the staircase, and overlooked the umbrageous walks of the Temple Garden [this is a poetical exaggeration, no portion of the garden being visible from the windows]. . . . . He gave dinners to Johnson, Reynolds, Percy, Bickerstaff, and other friends of note, and supper parties to young friends of both sexes. . . . . Blackstone, whose chambers were immediately below, and who was studiously occupied on his Commentaries, used to complain of the racket made overhead by his revelling neighbour."

Johnson had rooms on the first floor of No. 1, Middle Temple-lane, where Boswell was first introduced to him, and it is not improbable that, from the nearness of their residence, Johnson must have frequently visited Goldsmith at his chambers in Brick-court. Here that unlucky dinner took place to which Johnson, Reynolds, and others of his intimate friends were invited, the profusion of which so exasperated them by its needless superfluity, that when the second course was served they declined to partake of it, wishing to rebuke their host for his improvidence.

"I have been, many a time," says Thackeray, "in Goldsmith's chambers, and passed up the staircase which Johnson, and Burke, and Reynolds trod, to see their friend, their poet, their kind Goldsmith,—the stair on which the poor women sat weeping bitterly when they heard that the greatest and most generous of all men was dead within the black oak door."

These are some of the associations of the unpretentious houses in Brick-court, soon to be swept away. Nothing but the most imperious necessity can justify the pulling down of buildings full of so many interesting memories.

* "Oliver Goldsmith: a Biography," p. 128.

CUP AND RING MARKINGS.

AT a meeting of the British Archæological Association, held on the 15th ult., a paper on the cup and ring markings on stones at Ilkley, by Mr. J. Romilly Allen, F.S.A. (Scotland), was read, in the absence of the author, by Mr. W. De Grey Birch, F.S.A. These markings are found on many of the moorstones, sometimes on the top, but more frequently on the sides,—one of the most curious of the groups being on the "Pancake" Rock, on Rumbold's Moor, a high ridge, 1,010 ft. above the sea-level. Thirteen hollowed cup markings are found on it, enclosed with a connecting ring. Another group is on a stone at the foot of Green Crag, another on Weary-hill, and others on Piper's Craig.

An animated discussion followed, and Mr. J. Brent, F.S.A., suggested that the markings were plans of tribal interments, while the chairman proposed that they were plans of the tribal settlements themselves, while Mr. Loftus Brock pointed out, in support of this latter view, their resemblance to the plans of the dwelling-places on Dartmoor figured by Sir Gardner Wilkinson.

Several of the speakers referred the continuance of these markings to a comparatively late date, a stone similarly marked having been found within a dwelling at Birtley, with a coin of Valentinian and an iron sword, while other markings are found on the walls of brick churches in Germany.

COST OF ELECTRIC LIGHTING.

LAST week the discussion on a paper entitled "Notes on Electric Light Engineering," by Mr. A. W. Biggs and Mr. W. Worby Beaumont, which was read at a previous meeting of the Society of Engineers, was resumed. The president, Mr. Jabez Church, invited remarks on the relative cost of the electric light as compared with gaslight; one speaker placed before the meeting an account of some experiments which he had just carried out at the Crystal Palace, with the object of comparing the cost of the two methods of lighting. He gave, as an example, the relative cost in a small town requiring 500 lights. The cost of gasworks, pipes, and plant would not be less than 2,000*l.*, this capital cost and that of the production of gas would amount to a charge of 5s. per 1,000 cubic feet, this making the cost of 10,000 candle gas light equal to that of 64,000 candle electric light, as generated in thirty-two arc lamps by one of Davey, Paxman & Co.'s engines, doing 43-horse power at the Palace. Another speaker said that the statement of the authors was that, according to the information they possessed, incandescent electric lights would cost one penny for seventy-five candle hours, while gas would cost the same for only fifty candle hours. He, however, asserted that the cost of gas would be far less than this; taking the price at 3s. per 1,000 cubic feet, gas would cost only 0·56 of a penny for fifty candle hours instead of a penny as stated, the latter being equal to 5s. 4d. per 1,000 ft. There was considerable difference of opinion expressed as to what the incandescent light would really cost. It was necessary that electric lighting should be worked upon a larger scale before a definite conclusion could be arrived at on this point. It was also remarked

that however cheaply the electric light was produced, it would probably be possible to produce gas more cheaply still, on account of the useful by-products which were obtained by the distillation of coal. Mr. R. P. Spice, C.E., said his belief was, that gas would be found more economical than the electric light. A celebrated electrician in New York had calculated for him that the incandescent light cost seven times as much as the arc light, and, according to his own calculation, the arc light cost three times as much as gas light, taking gas at 3s. a thousand.

THE GREEK CHURCH, MOSCOW-ROAD, BAYSWATER.

THE Greek community, now well known in this country, were established here in the beginning of this century. After the destructive War of Independence they came hither seeking for a field for their ability, and must have been endowed with talent and energy, looking at the success they have achieved. They form now one of the most important commercial communities of the country. Their first establishment was in the City, and their first meeting-house in Finsbury-circus. In 1849 they built their first church in London Wall, where there was no space for architectural display. A desire was afterwards felt to migrate to the West, a church being desired near their residences, but a convenient position was not found without great difficulty. In 1874 a subscription was commenced, and a corner site was secured in Moscow-road, Bayswater, at a cost exceeding 10,000*l*. A building committee was appointed, of which Mr. Mavrogordato was appointed chairman, and that gentleman has supervised the execution of the work to the end. The committee determined to build a church in the Byzantine style, which best conforms with their mode of worship, and they entrusted Mr. John Oldrid Scott with the task of preparing designs and estimates. The plans were of an elaborate and ornamental character, and the first design appeared in the Royal Academy Exhibition, about six years ago. Owing to the commercial depression that intervened, the subscriptions did not come in so abundantly as was requisite for such a scheme (the intention being to build the church by voluntary contribution), and many of the ornamental parts of the scheme, in the shape of marble, terra-cotta, &c., had to be abandoned. Estimates were obtained, and a tender from Messrs. Kirk & Randall, for the sum of 15,000*l*., was accepted. The foundation-stone was laid on the 18th of July, 1877. The building was opened for service in an unfinished state on Pentecost Sunday, 1879.

A considerable portion of the land acquired had to be surrendered for the enlargement of the adjoining street, through which the site has been reduced to 11,000 square feet. Subscriptions having come in, the interior has been profusely ornamented; and up to the present time the sum spent has been nearly 40,000*l*. (including cost of the ground). Further decorations, in the shape of mosaics, for the dome and pendentives, are in progress. It is intended subsequently to cover the other vaultings with paintings in fresco.

The accommodation afforded is for about 700, and there are 300 seats. The walls are covered with marbles, and silver lamps are suspended from the vaultings.

Messrs. Farmer & Brindley executed the carving, as well as the woodwork and furniture, including the screen or iconostasis that separates the chancel from the body of the church; also the marble work throughout. The paintings in the screen were executed by Professor Thiersch, of Munich. These represent the chief figures of the Christian worship, and include Christ, with, on his right, the Virgin Mary, St. Sophia, and the angel Michael; on his left, St. John the Baptist and St. George, soldier and martyr. In the upper part of the screen are a series of twelve paintings, giving the principal events of the life of Christ related in the Gospel. Above the screen is a large carved Byzantine cross.

As a whole, the church must be pronounced a remarkable work, unique in this country, and does credit to all concerned.

Externally the building is of brick, and devoid of ornament. It was consecrated by his Grace Antonios, Archbishop of Corfu, assisted by the Very Rev. Archmandrite, Dr. H. Myriantheus, of the Greek Church in Liverpool, and other priests, on the 5th of February last.

SKETCHES FROM THE NEW NATURAL HISTORY MUSEUM, CROMWELL ROAD SOUTH KENSINGTON.

THE appropriately-designed storehouse at South Kensington for specimens of natural history, of which we have already given views, is now being gradually filled up with its treasures, and will, doubtless, be more and more visited by the public.

Much pleasure will be found in inspecting its manifold features and details. The study of the way in which innumerable forms of life, animate and inanimate, have been engrafted into the ornamentation of this structure, is extremely interesting, and presents something quite unique. Shells, seaweeds, plants, fishes, birds, reptiles, and beasts, extinct and existing, have all been pressed into the service, from next to simple protoplasm up to the statue of Adam on the apex of the central gable, placed there at the suggestion of Professor Huxley, as representing "Man,—the greatest beast of all."

M. Du Jardin, who, under the direction of the architect, Mr. Waterhouse, modelled, we believe, the whole of the work, deserves credit for evidently possessing the true decorative instinct in addition to his ability in the plastic art. Even the extinct *Machairodus* (scimitar-toothed lion), and the uncouth *Palæotherium* and *Mylodon* have been permeated with this charm without apparently doing violence to scientific record.

The fact of the building being in terra-cotta, inside and out, forms another cause for interest and admiration. We have got to know a good deal about terra-cotta by this time, both in its constructive and æsthetic aspects, but when the architect conceived his design for this museum it was not so, especially not in the new departure he took. Whether the great advantage claimed for terra-cotta of being impervious to the action of a London atmosphere is well founded or not will have to be settled by the test of time, but theoretically it should stand better than any stone under the same conditions. One advantage of the material is the delightful random variety of tone which can be obtained. This toning of a building, one of its greatest beauties, architectural artists have, in this country, mostly to improvise out of their own ingenious heads, but an artist painting a view of the new Natural History Museum will not need to exaggerate anything to secure what he wants; for, given a bright spring morning, and "the picture" is there ready before him: a reproduction of it in pigments on a flat surface is nearly all that need be done.

MONREALE, SICILY.

AMONG the interesting evidences of former architectural styles imported into the Island of Sicily, the Saracenic appears to have made the most enduring impression in the neighbourhood of Palermo and the western portions of the island. In the city itself are the churches of San Giovanni and the beautiful chapel in the Palace.

In the grand Norman church of Monreale, the peculiar admixture of Saracenic and Greek feeling are strikingly exhibited. Though the pointed arch is here freely used, it has little in common with that employed by the Northern Gothic builders. The windows and arches are simple in form, and the details generally are of decidedly Greek forms.

The great feature, however, of the church is the wonderful mosaics; these are most extensive, illustrating in the spandrels of the nave arches all the chief personages of the Bible, and many incidents of both the Old and the New Testaments.

The wall spaces are divided and decorated with elaborate mosaics, in geometrical patterns, exhibiting a truly Oriental exuberance of imagination, both in form and colour. The chapels contain some fine wood-carving in high relief, and monuments to the former kings of Sicily, William I., and his sons, Henry, William II., and Roger.

The ascent to the roof is made by a narrow staircase at the west end of the aisles, and affords a fine view over the town and neighbouring country, which in spring is white with the fragrant orange-blossom. The visitor will not fail to notice the quaint rugged old tiles, the rough surface, and fine red and green tones, lending a most picturesque appearance to the exterior.

Adjoining the cathedral is the Benedictine Monastery, the spacious and beautiful cloisters of which form the subject of the accompanying illustration. They are of considerable extent, measuring 169 ft. square, surrounded by an arcade of small pointed arches, supported on coupled columns of white marble, with a group of four at each corner.

An interesting feature is a small fountain in the south corner, inclosed by a projecting portico. The columns, as will be seen by the sketch, are decorated in alternate pairs in various ways, and formerly contained mosaics in bands; the latter have, however, unfortunately been destroyed. The varied and beautiful capitals to the small columns form, in themselves, a museum of architectural carving, presenting an infinite variety of quaint and elaborate designs, no two of which are precisely similar.

The almost Oriental elaboration of the details of these decorations gives a peculiar effect of richness to the architecture of these interesting specimens of Sicilian-Norman work, of which other examples may be found in various parts of the island.

The modern portion of the monastery is now used as officers' quarters: this contains a fine marble staircase and some pictures.

From the cloister garden a magnificent view is obtained over the valley of Palermo, with the encircling mountains; and, nearer, the luxuriant orange and lemon groves which form so conspicuous a feature in the Palermitan landscape.

The date of the foundation of the Benedictine Abbey of Monreale is 1174, and that of the Cathedral 1174–89. Its length is 333 ft.; its width, 131 ft.; it has three apses, a nave, and two aisles, and is flanked by two square towers. The entrance is by two fine bronze entrance-gates dating from 1186.

A pleasant run of twenty-four hours from Naples brings the traveller to Palermo, whence Monreale can be reached by carriage in about one hour and a half. The quaint and picturesque dress of the men of the country will be noticed; and the brilliantly-coloured carts, many of them decorated with figure-subjects, by primitive artists, with a sublime disregard of drawing and perspective. HENRY T. TIMMINS.

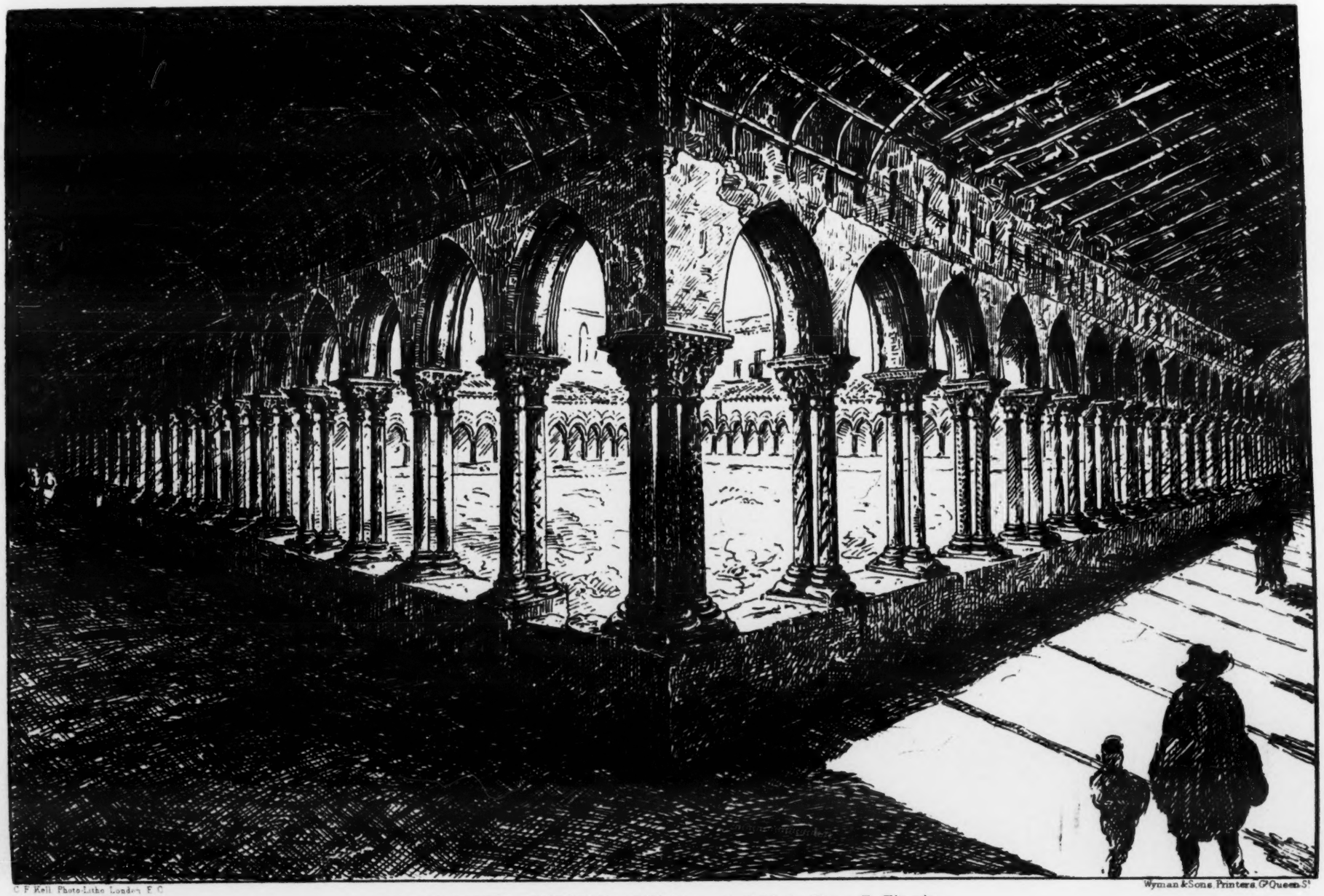
NEW LIBRARY AND MUSEUM, MELBOURNE.

THE site of the library is a little way out of Melbourne. It is proposed by the donator to exhibit Australian works of science and art only. The library is to be free, as well as the museum. The cost of the whole undertaking will be borne by an Australian gentleman now resident in England, and the amount will be about 13,000*l*. Mr. J. Nathan Smith and Mr. John T. Doyle are the architects.

POST OFFICE, ORANIENBURGERSTRASSE, BERLIN.

UNDER the administration of Dr. Stephan, the present German Postmaster-General, much has been done to improve the architecture of post-office buildings in his country. This improvement has shown itself as much in the provinces as in the capital. But it is in Berlin that great changes have been effected. We illustrated recently the new General Post Office of that city. In this issue of the *Builder* we present a view of the Post-office buildings in the Oranienburgerstrasse, which serve the purposes of the parcel-post. The view of the buildings which we give speaks for itself; but we may add a few figures illustrative of the postal traffic of the German capital. In consequence of the rapid extension of Berlin, greater accommodation has had to be provided for the growing demands upon the postal service. Statistics have shown that there are 220,000 families in Berlin, and that, on an average, each household gets one letter and one book-parcel per day, each family receiving, besides, one parcel every three weeks. To meet the great pressure upon the capacity of the Berlin Post Office, eighty post-offices, three central offices, and one newspaper post-office, besides pneumatic post-offices with six engine-houses, have been established. Five hundred horses are necessary to carry the letters and parcels. Perhaps one of the most interesting buildings in connexion with the Berlin postal service recently erected is that which we illustrate.

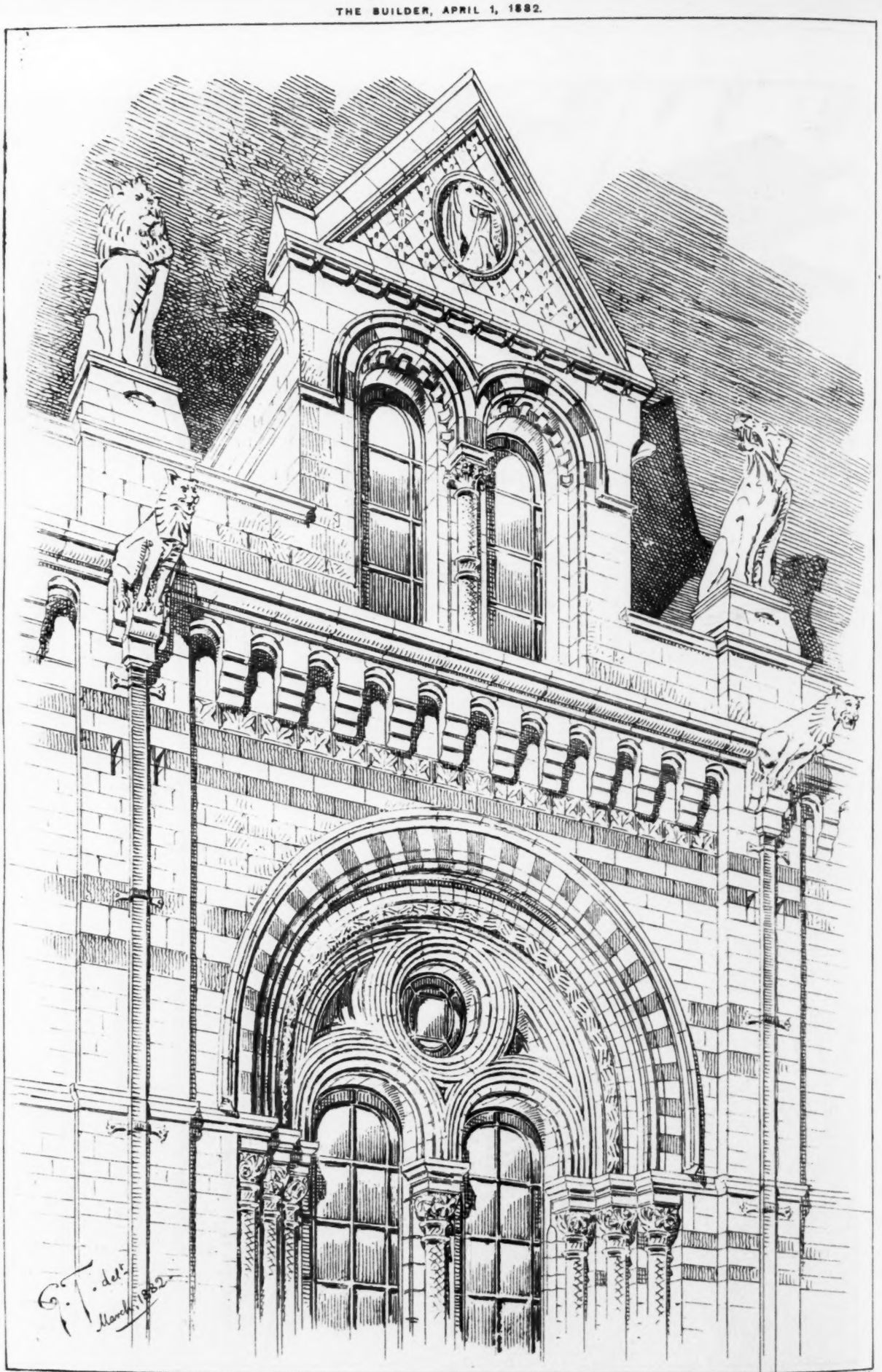
THE NEW CHURCH OF SANTA SOPHIA, MOSCOW ROAD, BAYSWATER.
Mr. John Oldrid Scott, Architect.



C. F. Kell, Photo-Litho, London, E.C.

Wyman & Sons, Printers, 74 Queen St.

THE CLOISTERS, MONREALE, SICILY.——*A Sketch by Henry T. Timmins.*



Whiteman & Bazo. Photo Litho. 236 High Holborn.

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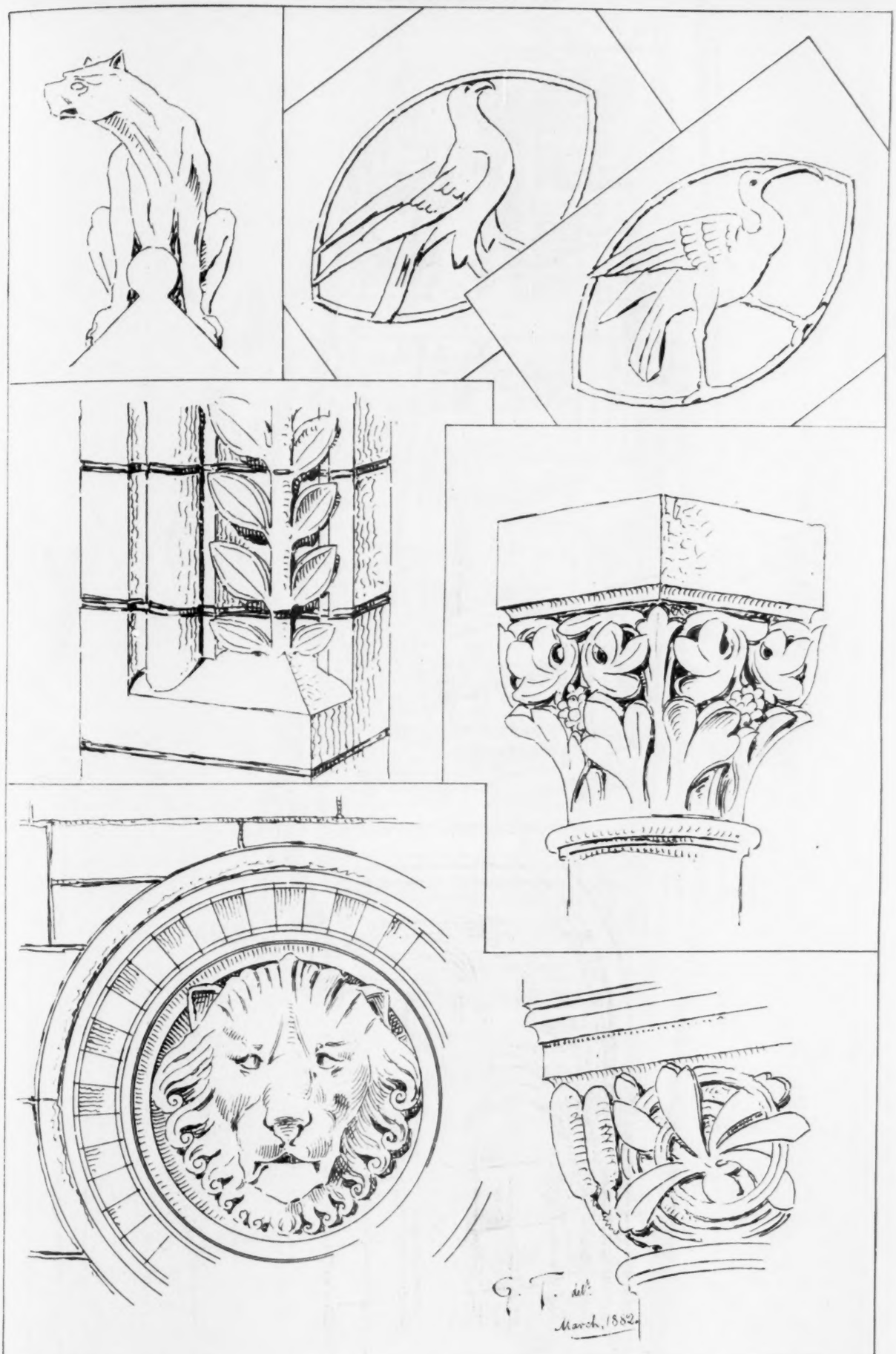
SKETCHES FROM THE NEW NATURAL HISTORY MUSEUM, CROMWELL ROAD, SOUTH KENSINGTON.



Whiteman & Bass, *Photo-Litho*, 236, High Holborn.

Wyman & Sons, Printers, Gt Queen St.

SKETCHES FROM THE NEW NATURAL HISTORY MUSEUM, SOUTH KENSINGTON.

Whiteman & Bass. Photo Litho 236. High Holborn

NEW LIBRARY AND MUSEUM, MELBOURNE.—Mr. J. Nathan Smith and Mr. John T. Doyle, Architects.

Wyman & Sons, Printers, 6 Queen St

POST OFFICE, ORANIENBURGERSTRASSE, BERLIN.

MONUMENTAL PAINTING.

THE fifth lecture of the series given in support of the Society for the Protection of Ancient Buildings was delivered on the 23rd ult., at the Kensington Town-hall, by Professor W. B. Richmond, M.A., who took for his subject "Monumental Painting."

Previously to the lecture, which was copiously illustrated, Mr. R. S. Poole announced that Mr. E. J. Poynter, R.A., owing to pressure of work, had postponed his promised lecture on "Decorative Art" till Wednesday, the 5th of April, when it would be delivered in the theatre of the South Kensington Museum. On Thursday, the 30th ult., Mr. William Morris, M.A., was to lecture on "The Lesser Arts of Life."

The lecturer said that to deal satisfactorily with such a vast subject as monumental painting, and to follow it into the different fields of art to which it led, would be more than could be expected from a single lecture, for the many classes of painting which might, in the most comprehensive sense, be called monumental, covered the whole area of the history of art; they embraced epic, history, portrait, and landscape. Monumental painting, not immediately, but of necessity, connected architecture and sculpture with decorative painting, nor was it necessary that to be monumental in character a painting should be executed on the wall. Many works which might be cited were painted upon both canvas and panel. It was not with this comprehensive view they were then to occupy themselves. His remarks would be confined to a general review of the progress of painting from Giotto to Michelangelo, and, as during this period of time, almost all the works in painting were executed on walls, monumental painting in the sense of mural painting, would alone be considered. First, it was desirable to know the importance of art generally and of the influence of architecture upon both painting and sculpture, and to know how painting grew under the wing of architecture and sculpture, and how greatly she profited by contact with them.

Before Mr. Ruskin had opened their eyes to the beauties of early Italian art, the pedantic "brown tree" of the landscape-painter's traditions entirely governed what stood for taste. While the real expressive quality of early art was forgotten or passed unnoticed, whatever the conditions of nations, Mr. Ruskin, it must be acknowledged, had chastened the taste of England, and had greatly added to the love of natural beauty. There was no reason for any of them to remain ignorant concerning Italian art, or to be insular in their tastes, but rather should they endeavour to enlarge their sympathies and spread of ground, learning all they could from the other side of the "silver streak," and especially to study the severe work of the earliest art, for they had much to learn in that direction. The English school began, he (the lecturer) might say, with Hogarth. Nearly all the religious painting and the tempera pictures were destroyed at or after the Reformation, so that then English painting received a check in decorative art from which she had not yet recovered: consequently, in painting England had no archaic traditions, and it had been influenced far more by the Dutch than by the Italians. In Italy, both fresco and tempera painting were the means of decoration when mosaic ceased. When the architect admitted more light into his building fresco took the place of mosaic. Fresco led to a noble style of work; it could not be done heavily, and nothing could be achieved by accident. Design, in all its branches of form, light, and shade, must be planned and ready before the fresco-painter could begin his work upon the wall, and very much of the dignified restraint of the early Italian art was due not only to the junction of the three arts, but to the precise and mathematical nature of the art-training which the process of fresco-painting demanded. This was a lesson of no small importance, for, whether the modern painter was or was not to be a mural painter, an education formed upon the severest practical lines would assist rather than retard his progress, whatever branch of the art he might choose to follow. Perhaps it was useless to hope that fresco-painting, if only as an education, would ever be taught in their schools; but this was a pity to know, on account of the chastening and severe influence it had upon the art. Still, with all the aids there were, a section of the educated public was becoming larger, and the study of a severer form of art was more universal than it was. The dread of idolatry, the terror of Romanism, and the cold hand of Puritanism, chilled the warm dream of art. For the most part their churches were caves or whitewashed sepulchres, uncoloured, or, if coloured at all, only in part, and such designs as existed were formed of mechanical colour. The plain duty of those who had a voice to be heard, and were desirous of the progress of the highest forms of art, was to use every opportunity they might have to appeal to the public frankly, and in that way to open their eyes to the great want, and, if possible, to excite them to action; yet, while so large a section of exhibition-goers were satisfied with the dreary commonplace platitudes of daily life, any future of true art in connexion with the deeper thoughts and aspirations of men appeared still far off. The works of the great masters should be the groundwork of education, and the austerest and severest forms of each art should guide the earliest steps of the progress of taste, because they were always sincere without affectation, always untrammelled, and were always marked by modesty and spontaneity. The halting power of expression so easily discovered in them was full of charms. In all the arts the progress towards perfection was even more interesting and instructive than the moment of culmination. In order to comprehend the full development of art, they must follow her step by step from her childhood.

The architect, the sculptor, and the painter of Italy did not hold separate functions; all the three arts were, in many instances, known by one man. Giotto, Michelangelo, and others, if they did not practise every art, were at least conversant with them, and were complete masters of two at least of the arts. That complete union which existed from the earliest times, of architecture, sculpture, and painting, led indeed to the maturity of the noblest characteristics of each art by the habit of mutual constraint. The three grew together; they demanded no single reward or individual praise, but they were content that perfect beauty was found in their combination. True art found in them one common pulsation. In the strict sense, monumental painting was connected with painting and sculpture. In the childhood of its career the forms were scarcely more than emblems, but they were the expressions of the minds of men in the hands of children. Monumental painting of that day depicted the march of man's life, his noblest feelings, and the highest hopes of his soul. Not only in form, but also in the treatment of colour, the Italian monumental painters excelled; they showed delicacy of perception, calm reflection, and harmonious execution in their works, this being brought about by the union of the three arts. The greatest painting was that which had in it the influence of architecture and sculpture, and yet had not been robbed of the essential elements of it alone. In the frescoes of Giotto they were brought face to face with the natural truth, which was deep below the surface of the work. There was not only the perfection of the story, but there were justice and clearness. The art of Giotto was the outcome of Greek tradition drafted from the Italian spirit. As long as the simple art of Giotto was paramount science was held in check. Those who studied art, and who would become conversant with her limits and her true boundaries, must feed upon the earliest expression of the mind of the greatest painter who ever lived, whose shortcomings were only the shortcomings of science, whose work was clear in invention and absolute in taste, whose colour was quite perfect, and, above all, whose noble design was unsurpassed in art. No hasty observer could properly understand his work, which was essentially to be deeply studied. It was childlike in expression and robust in thought. When all the stories were made out, when every motive was understood, and when every figure was clearly followed, then there remained the physical beauties to be studied, which had been little recognised. In the representation of the hair and drapery Giotto was remarkable. In all his designs there was not to be found one simple straining after artistic effect. There was no touch that was done by the rule of thumb. His work might be compared to Greek art; it was in perfect accord, and there were no more beautiful designs to be found in Italy than those of Giotto. In decorative art there were no purer works. He attained perfection in expression up to a certain point; beyond that he could not go, and the natural restraint imposed was rather an advantage to him than otherwise, only later expressions of motion and attempts at mobility became more apparent. It might be said that after the death of Giotto the art of painting progressed but very little; no painter arose who could rival him. He stood quite alone; he was at the end and at the beginning, and his works would stand by the frieze of the Parthenon. All really great art had a kinship, and, as it had been said, true art would not materially suffer from juxtaposition. Art having been pretty nearly perfected as a pure sentiment, it remained feeble; it had to extend its field in the observation of nature, and to concern itself with the knowledge of nature's laws, so that each painter who followed Giotto kept on adding to the general knowledge: consequently art advanced with rapid strides. Amongst the three most important painters who followed Giotto were Leonardo da Vinci, Michelangelo, and Raffaelle, all of whom were distinctly different in genius, and each one, according to his own special gifts, arrived at perfection. Of the works of Leonardo da Vinci, they knew comparatively little as compared with the complete works of Raffaelle and Michelangelo. The name of Leonardo da Vinci as a painter had a spell about it and excited the imagination, but it might be said that no work existed by which they could test Leonardo da Vinci as a mural painter. His famous work was the "Last Supper." In regard to Michelangelo, his great cartoon, representing a scene in the wars with Pisa, came on the world as a miracle, and it was accepted as the greatest achievement of modern art. Then he painted the vast ceiling of the Sistine Chapel, which was the perfection of monumental painting. In the history of art this work stood alone in conception, in limitless invention, and in the mystery of its execution. In it the severe and early art of Giotto was not departed from, but rather adorned by Michelangelo. Raffaelle, with all his grace, never touched the chord of a mother's love like Michelangelo, as depicted in the groups represented in the spandrels of the roof of the Sistine Chapel, where they saw men, women, and children depicted in their perfect purity and highest beauty. In the presence of such a work one must bow, and criticism respectfully keep silent, except to appreciate. In looking back, they saw that with Giotto a new art began, and ended with Michelangelo, but with that end the death-knell of monumental art was sounded, and the influence of the sister arts one upon another ceased; for when the breath left their bodies, all that was truest in monumental art in Italy slept.

BUILDING NOTES FROM THE WEST.

THE building trade in the West of England remains unchanged. Amongst the works now noticeable are the following:—

Holy Trinity Church, St. Philip's, Bristol, presents a greatly improved appearance since the recent alterations. In the west porch, the dead wall between the outer and inner porch has been replaced by three light archways, which give greater convenience for ingress and egress, and also render the inner porch much lighter. The flooring of the church is entirely new, and open pitch-pine seats take the place of the old high-backed ones. The gallery front has been reduced in height, so that those in the back seats can see the preacher; and alterations have been made in other parts of the building, adding to its convenience and attractiveness. The windows have been reglazed with rolled cathedral glass in effective designs. The windows have been attended to by Mr. Ben. Gay, Bristol; the lighting arrangements and metal work are by Messrs. A. G. Williams & Co., Bristol; the new brass lectern was made by Messrs. Jones & Willis, of Birmingham; the decorations of the east end of the church are by Mr. John Powell, Bristol; and the rest of the work has been carried out by Messrs. Stephens & Bastow, Bristol. Mr. John Bevan was the architect. The church now accommodates 1,500 persons. The work cost nearly 2,000*l*.

New schoolrooms have just been added to the Victoria Wesleyan Chapel, Clifton, at a cost of 1,200*l*. The work, which was executed by Mr. William Church, of Wapping, Bristol, is in keeping with the design of the chapel. The windows are of fourteenth-century design, and glazed with tinted cathedral glass, by Messrs. Bell & Son, of College-green.

The warehouse that has been erected by Messrs. Howell & Son, from the designs of Messrs. Foster & Wood, for the well-known firm of Messrs. Budgett, cannot fail to be noticed by

any one passing through Bridewell-street. The building stands on part of the site of the old City Bridewell, which was demolished a year or so ago, and it covers a piece of ground, 120 ft. long, 60 ft. deep at one end, and 56 ft. at the other. It is of the most substantial construction, the outer walls, which are 3 ft. 6 in. thick, standing on a concrete foundation, 6 ft. deep. The walls are of Pennant, with Bath and Ham-hill stone dressings. The structure, though no great attempt has been made to ornament it, is imposing in its massive fitness. It is 64 ft. high, and the numerous lofts are floored with boards, 3 in. thick, each being grooved at the edge to admit of a galvanised iron tongue being driven between them. The flooring rests on strong iron girders, supported by iron columns. One end of the warehouse still remains to be finished.

The Bristol Athenæum Reading Hall has been improved and re-decorated by Messrs. Thomas & Son, of Clifton. The decoration is in good taste.

Messrs. Wills & Co. have placed in front of their handsome factory, in Redcliff-street, a double-faced illuminated clock, regulated by electricity from Greenwich. The number of clocks so regulated in Bristol is increasing rapidly.

A memorial window to Mrs. Lucas, who died on June 10th, 1880, has been added to the stained glass of Bristol Cathedral. The south window of Newton Chapel, which consists of four lights and tracery, has had introduced into the lights a subject-panel, the groups being arranged to represent the six acts of mercy. The window is by Messrs. J. Bell & Sons, of College-green.

The enlargement of the West of England Sanatorium, Weston-super-Mare, is progressing satisfactorily in the hands of Mr. A. J. Beaven (Bristol), the contractor. The institution was opened in 1868, and the first patients were received not in the building now standing, but in a house standing on its site. In 1870 the central part and south section of the permanent building were begun, and the work now being done is for the completion of the structure. The section being added will give accommodation for fifty patients. The building is Gothic in style, and in the front there are three central gables with recesses, of which advantage has been taken by the architects, Messrs. Hans Price & Wooler (Weston-super-Mare), to provide covered verandahs in order to give a sheltered promenade in wet and cold weather. At the north and south two wings are projected containing the dormitories for men and women. On the north side a noticeable feature will be a square tower surmounted by a pointed lantern roof, with ornamental finials.

The designs of Mr. Herbert J. Jones (Wellington Chambers, Bristol) have been accepted for the erection of a new Wesleyan chapel and minister's residence at Clevedon.

The Baptists of Salisbury have just opened Brown-road Chapel, which has been built at a cost of 3,000*l*.

Amongst the churches which are about to be or are receiving attention in Devon and Cornwall, may be mentioned the following:—A church is designed in the parish of St. Endellion, near Wadebridge, to accommodate 214 persons, all seats being free. The cost is estimated at 1,172*l*. The Church of St. Mary, Callington, built A.D. 1400, which underwent extensive repairs in 1857, is to be enlarged by 150 additional sittings; the cost has been estimated at 1,127*l*. St. Morwenna, Morwenstow, North Cornwall, is being restored gradually; the nave and roof are finished, and the interior is now in hand. A mission church is to be erected at Kenaye, near Truro, at a cost of about 200*l*. It will provide room for 100 persons. A somewhat similar building is designed for St. Allen, near Truro; the cost will be about 230*l*.

Christ Church, Clevedon, is to be re-seated and improved at a cost of 500*l*.

Considerable improvements have been effected at Holy Trinity, Stroud, and the chancel has been decorated by Messrs. Stansell & Son, of Taunton.

The building known as the Tolzey Hall, Tewkesbury, which was formerly a Weleyan Chapel, has undergone alterations, and has been opened as a Temperance Hall.

The scheme of church extension in Bristol, which embodies the erection of several new places of worship, and the enlargement of others, has already received contributions in its aid amounting to nearly 20,000*l*.

ARTISTS' BENEVOLENT FUND.

ANNIVERSARY DINNER.

THE seventy-third anniversary dinner of this Fund was held on Saturday evening last at the Freemasons' Tavern, the Right Hon. W. H. Smith, M.P., in the chair. There was an unusually large attendance of members and friends.

The usual loyal and patriotic toasts were given and enthusiastically received, the chairman referring in appropriate terms to the recent happy deliverance of her Majesty the Queen from serious danger, and to the valued appreciation which her Majesty (the patroness of the Fund) and the other members of the Royal Family gave to art and artists.

The Chairman, in proposing the toast of the evening, said,—We have now approached the serious business of the meeting, and it is my duty to ask you to drink the toast of "Prosperity to the Artists' Benevolent Fund," coupling with that toast the names of the president and vice-president of the Fund. Ladies and gentlemen, what are the objects of the Artists' Benevolent Fund, and why is it that we are here met together to endeavour to promote its interests and its success? In the first place, I will venture to say what its objects are not. It is not a fund which is intended for, or which will contribute in the slightest degree to, the support of any member of the Artists' Annuity Fund as such. The artists who are the members of the Annuity Fund do not, on any consideration or at any time, appeal to the public, or to those who are called the "patrons" of the fine arts,—I think the term is an unfortunate one, and I will presently say why I think so,—for any assistance for themselves. They have provided for themselves by a system of insurance, by a provident fund of their own; but they do appeal to the public, and I heartily support that appeal, for help for the widows and children of their brother-artists, who, overtaken early in life by unforeseen calamities, such as prolonged sickness, may have passed away without having had the opportunity of making the provision they would have desired for those near and dear to them. Now, ladies and gentlemen, speaking in the highest sense of the word from an economic point of view, I say that I do not think it possible for anybody,—however strongly he may hold it to be the duty of every man to make the greatest possible efforts to provide for those whom he may leave behind him,—I do not think it possible for anybody, even the most stringent economist, to object to the work which this Artists' Benevolent Fund is doing. I need not tell you, for you all know it, that sickness and death may overtake a man before it has been possible for him to make provision for his family. And when you come to consider the peculiarities of the profession of the artist,—I am not one myself, but I think, on that account, I most appreciate those peculiarities,—when you consider that an artist must be, and usually is, a man of a fine temperament, and of considerable powers of imagination, and with tastes which would tend, in the first instance, to disqualify him for the pursuit of the ordinary business engagements of life; and when you consider that in order to be successful in his profession he must have studied long and carefully,—must, in short, have passed a long time in qualifying himself to succeed in delighting those who may become possessors of his works,—you will see that this Fund has great claims upon us. Artists contribute greatly to the purest enjoyments of our life, and we are, therefore, largely dependent upon them for our happiness. When we consider the care and study which the artist must bestow in order to qualify himself to contribute to our happiness, we perceive at once that, before he really enters upon his career, he must often devote to mere preparation for work a period of time which, in many other walks and operations of life, would afford him opportunity for making provision for his family. That is one ground, then, on which I think the public may reasonably be appealed to to assist the families of artists who are overtaken suddenly and disastrously, and often comparatively early, by death and misfortune. But there is a characteristic feature of the artist's mind which has always appeared to me to render him in some degree disqualified for the active pursuit of those profitable engagements, and that is, imagination. It is the imagination of the artist which delights us as we look at its results in the creations of his art; but the artist's imagination in the early part of his career is often the very reverse of profitable to him. He may at last arrive at competence and success by the perfection of his capacity to realise, embody, and perpetuate in his works the ideas of his imagination, but only after a long process of thought and study,—a process which has not been a profitable one to him while it lasted;—therefore he remains poor and unable to make provision for his family until long after the period when men in other professions are generally enabled to make such provision. I appeal to you on behalf of this fund as a lover of the fine arts, for I do not feel myself qualified to speak as a "patron" of art and artists. I said just now that I regret the use of the term, as I think it implies the existence, between artists and those who buy their productions, of relations which are not of the most agreeable or satisfactory character. It does not at all correctly express the position in which we stand to each other. I and my friends on both sides of me are indebted to art and artists for much,—very much indeed,—of the enjoyment and happiness of our lives. I remember very well that when I was a boy the first money I possessed I devoted to the purchase of a water-colour by Topham, which I hung up at the foot of my bed, and when I returned home at night, after working hard all day, the picture seemed to look down upon me and shed a pleasant influence over my soul, and I went to sleep soothed and happier than I should have been but for the work of the artist. The picture, indeed, seemed to be a guardian angel hovering near me. I have retained that picture through many years and through many vicissitudes and changes, and I now possess other pictures, some of which are specially valuable to me for the influence they have exercised over my temperament. I am thankful and grateful that they exist, and am thankful to the artists for the skill, the imagination, the thought, the care, and the sympathy they have brought to bear in their works,—qualities which have appealed to me in a thousand different ways, and have influenced my life and character in a manner and degree which are almost unknown to me. On my part, then, there is no assumption of the character of "patron" of artists. On the contrary, instead of artists being under obligation to me, I feel deeply indebted to them, not only on account of the influence which their works have exerted on myself, but for what they have done, and are doing, by their art in refining, soothing, and elevating the community amongst whom we live. Well, then, ladies and gentlemen, shall we not, under these circumstances, enter into the joys and sorrows of artists? Shall we not soothe the last moments of the artist who, just as he appears to be on the threshold of fame and competence, is struck down before he has had opportunity to make the provision he would have wished to make for those who are very near and dear to him? Shall not the last moments of such a man be soothed by the conviction that this Fund will shield his widow and children from absolute want? That is the beneficent work which is done by the Artists' Benevolent Fund. It is not extravagant in its grants. The provision it makes is very modest, but it is a provision made largely by the kindliness and sympathy of artists who, in their prosperity, are ever ready to assist those of their brethren who have been less fortunate than themselves. But they cannot do all, and it is our privilege, as well as our duty, to help in the good work. I appeal to you, then, ladies and gentlemen, for your assistance. As we have done in the past, so now and in the future, we shall, I feel sure, heartily support this Fund, not from any feeling of patronage, but from a sense of the duty which we owe to our neighbours, from sympathy with suffering and distress, and because of the real pleasure which is afforded by contributing, as far as we can, to alleviate the sorrows and assuage the trials of artists, to whom we all owe so much.

Mr. John Absolon, chairman of the Committee, responded, and the result of the appeal was subsequently announced by the secretary, Mr. Lambton Young, to be a total of 800*l*., which included her Majesty's forty-third annual donation of 100 guineas, and 55 guineas contributed by the members of the Artists' Annuity Fund.

The Right Hon. the Lord Mayor proposed "The Royal Academy," coupled with the name of Mr. C. B. Birch, A.R.A., who briefly replied.

The Right Hon. H. Cecil Raikes proposed "The Artists' Annuity Fund," for which Mr. Arthur Willmore, the president, replied, refer-

ring to the sound financial position of the Fund, and urging all young artists to help themselves by becoming members of it.

During the evening there was some excellent singing.

"THE DESCENDANTS OF THE RENAISSANCE."

In the discussion which followed Mr. Stannus's lecture before the Architectural Association on this subject (see p. 365, *ante*),

The Chairman (Mr. Aston Webb) said he could not help regretting that Mr. Stannus had confined his attention to what was bad rather than to what was good in the "descendants of the Renaissance." A large number of the illustrations which he had adduced were examples to be avoided rather than followed. The lecturer also seemed to congratulate himself and his audience that the debased detail of which he had spoken had now altogether died out, and that architects were now quite prepared to start afresh and to produce works in the pure Renaissance style which should be thoroughly creditable to them. Unfortunately, Mr. Stannus was a little too sanguine with regard to the matter. If the Renaissance style was to be revived, it must be used with great severity, and architects must put bridles on their pencils. Mr. Stannus need not have apologised for the fact that the illustrations which he had adduced rather appertained to decoration than to building, for in his (the Chairman's) opinion, the Renaissance was seen at its best in matters of detail rather than in large masses of building. If, as they were told, the style of the Renaissance was about to "come in," it would not succeed unless it could be used for buildings either in stone or brick, and only by the exercise of great thought would buildings be produced in it which would be remembered, and add to the renown of the present century.

Mr. Gilbert R. Redgrave, in proposing a vote of thanks to Mr. Stannus for his lecture, observed that Mr. Stannus had confined his remarks to the Renaissance of two countries alone, viz., France and Italy: both of them, it was true, countries in which the Renaissance had been very fully developed. In England the Renaissance was very late in the field. The first work which gave us any idea of the style as it was understood here was the "Architecture" of John Shute. That book abounded with the ornaments and debased scrollwork with which Mr. Stannus had found fault. During the past year he (the speaker) had occasion to travel in the South of France, and he had seen a great deal of the work there. In Toulouse there were several important buildings supposed to be by Primaticcio, or by French architects trained under him. Those buildings included a palace built by the Duchess of Savoy. It was, on the whole, very pure in style, though here and there it showed traces of what Mr. Stannus evidently regarded as the Evil One in the form of little curls and scrolls. In Toulouse were also to be seen later specimens of the style by other architects. In the hands of some of the architects of other countries who succeeded the first masters of the Renaissance, the decadence was much more rapid than was the case in France and Italy. Everybody knew how Renaissance architecture was treated in Portugal, viz., after the manner of goldsmiths' work. Mr. Stannus had alluded to the ornaments to be found in early, though not the earliest, printed books. No doubt the printers were great sinners in the dissemination of bad ornament in the form of tail-pieces, &c., and as printed books began to multiply very rapidly towards the end of the fifteenth century, they were probably as much to blame as architects and decorators for the inculcation of false principles of ornament.

Professor Kerr said he had listened with pleasure to Mr. Stannus's lecture. It struck him, in looking at the very suggestive examples which were hung upon the wall, that young architectural critics and students might be usefully reminded that there was a distinction to be drawn between architecture and modelling. Architecture was essentially constructive, and its ornament, which had to be developed in an architectural way, properly so-called, had to be, not constructed, but involved in the construction and made to arise out of it. They all, as architects, more or less understood the application of that principle generally, if not always in its minutest detail. Modelling, on the other hand, was obviously a thing quite independent of construction. It was based upon the idea simply of "pleasing the eye,"—if he might use that expression, which, scientifically, was a very loose one,—or of "pleasing the taste" (which was an almost equally loose expression) by means of beautiful forms. The architect had to confine himself, as regarded his aspirations after beautiful forms, strictly within the limits of his construction, and to see that the articulation of his work was strictly discernible. But the modeller was controlled in no such way. He had simply to throw together, not produce, such a collection of beautiful forms as would please, or amuse, or gratify the senses of those who wished to be pleased, amused, or gratified. Bearing that distinction in mind, it was very easy to understand that all the objectionable features of the debased Renaissance which had been enlarged upon by Mr. Stannus had been founded strictly upon the idea of modelling, without any reference to the principle of architectural construction. To carry the distinction a step further for a moment, he would consider the difference between the criticism of the architect and the criticism of the non-architect, or, in other words, the criticism of the architectural profession in this country and the criticism of the public of this country. Now professional architectural criticism endeavoured to arrive at principles and rules of practice which should be constructive,—strictly, sparingly, and rigidly constructive. He granted that exceptions to this were pretty numerous, but nevertheless, most critics adhered to the line he had indicated, and the need of showing the articulation and mode of construction of a building had always been dwelt upon in modern times by the best critics. But that was not at all the principle upon which the public criticised a building. They asked themselves: "Does the architect's work please the eye?" (He was obliged to repeat the expression, in all its looseness and vagueness.) The public did not understand the principles of architectural construction, and the language of articulation in architectural design was not even a dead language to them: it was a language which had never lived, and which they could not understand in any way. How, then, were architects to expect the public to appreciate those delicate principles of articulation upon which they dwelt as essential to their work? There were those who were studying architecture with the intention of practising it, and possibly with the intention of introducing a new school. Well, he thought the time had come for a new school, and he thought the change was impending, but those who hoped to be the ministers of the new *régime* in architecture ought to be warned of the distinction between the taste of the architect and the scholar and the taste of the public at large. The question was to which division was the architect to bow? There were men in the present day, as there always had been men, who would accept the public taste, for better or for worse, for the sake of that personal prosperity which was ephemeral, when they might acquire fame which would endure. In plainer language, there were men who would "trim" to the public taste, thereby compromising and sacrificing their intellectual position. What, then, was to be done? The public were the masters, and the public must be pleased. Mr. Stannus told them that Renaissance architecture was now pressing its claims to consideration on the part of modern English architects, and that the immediate future of architectural design was to be very largely indentified with the resuscitation or re-adoption of Renaissance in some form,—it was to be hoped a good form rather than a bad one. Now, he would try to look at the subject rationally, and would not harp upon the "Queen Anne" style any further than was necessary, but it was of no use to ignore the fact that the "Queen Anne" style, which had made itself so prominent of late, was an evidence, very clear and distinct, of the precise condition of the architectural mind at the present time. It was not to be taken as an abnormal manifestation of taste on the part of architects, but rather as the deliberate expression of the desire of architects to acquire popularity by trading upon a perverse taste which had taken possession of a portion of the public. It was a public of the higher class, but, at the same time, a public composed of a very insignificant and frivolous class. That was the conclusion at which he had arrived, and if any young man were to ask him to tell him frankly whether it was worth his while, having regard to chances of future prosperity, to constitute himself, by any long and painful study, an expert in the "Queen Anne" style, he should be obliged to tell him that he did not think it would be worth his while. But he still said, as he had been accustomed to say, that he regarded the "Queen Anne" style as a stepping-stone towards the adoption of a better form of Renaissance. Architects had been accustomed to cultivate the picturesque in their work in the Gothic styles, and they had cultivated it with very remarkable success. He was not one of those who would decry picturesqueness, but he should be inclined to urge young architects to cultivate the quality of reticence in design a little more than some of them did. Reticence, modesty, and sobriety, of judgment were amongst the highest qualities of Classic architecture, as they were also amongst the highest qualities of Gothic work. It was a mistake to suppose that Gothic architecture must be all irregular spikes and corners, giving to a whole building the effect of having been turned out at random. That was not the case in the best examples of Gothic, which exhibited symmetry wherever symmetry was possible, and never showed any straining after effect in the shape of picturesqueness. In conclusion, the Professor said he had much pleasure in supporting the vote of thanks which had been moved to Mr. Stannus.

Mr. Lewis F. Day said that Mr. Stannus had, no doubt correctly, traced the fall of the Renaissance to the introduction and growth of what might be called the "curly-whirly" element; but the evil was not peculiar or fatal to the Renaissance alone. The same influence had brought ruin on other styles. Gothic art had died simply through being frittered to death. All styles in their beginnings were restrained and severe. That was certainly the case both with Gothic and Renaissance, and therefore one thing quite certain was that the cause of their decadence did not lie in the styles themselves. The cause was rather to be looked for in the people who used the styles. A luxurious, not to say licentious age, would be characterised by exuberant ornamentation. He did not share Mr. Stannus's faith in the middle classes as judicious patrons of architecture and art.

Mr. H. L. Florence said that in criticising the works of Primaticcio, it should be remembered that Primaticcio was not an architect at all, his work consisting mainly of decorative design. The unfortunate little volute which had been abused as the cause of so much mischief in architecture had been employed by Primaticcio purely as a matter of decoration. He thought it was as unfair to condemn the Renaissance because of the decorative details which Mr. Stannus had chosen for his illustrations, as it would be to judge of the character of Roman architecture by the painted decorations found on the walls of Pompeii.

Mr. A. B. Pite did not believe that we were shortly to see in this country a revival of Renaissance architecture. He based his belief on the views of the young men in the profession, who, in his opinion, by holding aloof from the Queen Anne mania, showed themselves to be possessed of more wisdom than their seniors. He had not great hopes of the middle classes as patrons of art, but he should like to see established a competent Ministry of Public Taste.

Mr. Stannus, in the course of his reply to some of the points raised during the discussion, said he had purposely chosen to speak of detail because decadence showed in that before it did in the main forms. He did not object to "curly-whirly" so long as it was merely decorative in a panel; but when the disease attacked the mouldings and stiles (*i.e.*, when it showed itself in the construction), he considered it bad, and condemned it as leading to subsequent debasement.

Manchester Academy of Fine Arts.—At the quarterly meeting of the Council of the Manchester Academy, held on Tuesday evening at the Royal Institution, Mr. John Henry Letherbrow, Mr. Arthur Wasse, Mr. Eyre Walker, and Mr. William Artingstall were elected members, Mr. Byron Cooper was elected an associate, Mr. W. H. Littlewood was elected an associate architect, and Miss Mary Hodgson was elected a lady exhibitor of the Academy. The treasurer reported that the total value of the works sold at the recent exhibition was 1,627*l.*

THE HYDE PARK CORNER SCHEME.

It is satisfactory that there appears now to be a real probability of the long-talked-of improvement of Hyde Park Corner being carried out at no very distant date. Objections of one kind or another may present themselves, no doubt, in regard to any proposed plan for getting rid of the throttling of traffic which has long prevailed at this point, and we will not say that the plan brought forward by Mr. Shaw Lefevre is not open to criticism; but he appears, at least, to be in earnest in the endeavour to get the matter settled, and may claim the merit of having propounded a definite scheme and named a definite price for it, by no means extravagant if the scheme prove satisfactory. The tone with which his proposal has been received in the House and in various quarters in the daily press may be taken, however, to be partly inspired by satisfaction at the prospect of getting something actually done, and need not be taken as implying that the scheme is not capable of amendment. There is still time for reconsideration of details if this should seem desirable; and we may suggest one or two points as to which caution and deliberation may wisely be exercised.

Mr. Shaw Lefevre's scheme is to cut off a portion from the Green Park, not so considerable as to constitute any spoliation of the park, but sufficient to allow of a road extending with a gentle sweep, rounding off the north-west angle of the park from opposite Hamilton-place to the point opposite Halkin-street. This will lay open a nearly triangular space opposite Hyde Park-gate and Apsley House and the adjoining houses. This space is to be laid out in enclosed flower-gardens, leaving between them and the Green Park the road already mentioned, by which the connexion between Park-lane and Piccadilly and the Grosvenor-place district will be maintained without the necessity of going up to Hyde Park-corner; the line of road straight from Grosvenor-place to the Park entrance will be maintained, but widened; the sharp curve at the top of Constitution-hill will disappear, this part of it being thrown into the proposed *place*, and the line from the straight portion of Constitution-hill will be carried up in an easier sweep, between the parterres, to meet the straight road opposite Hyde Park Gate. The Wellington Arch is proposed to be taken down and rebuilt at the top of the straight line of Constitution-hill, standing at about an angle of 45° with the present position of the arch.

In the model which was placed in the tea-room of the House for the inspection of members, the scheme looks pretty well, and provides ample amount of roadway for the three different traffics; but when we in imagination place upon it the three moving streams of traffic, we at once see that the private and privileged traffic down and up Constitution-hill will have to run the gauntlet of crossing at right angles what will be the principal,—or, at least, the most crowded,—line of traffic along the sweep of the new road connecting Piccadilly with Grosvenor-place and Pimlico, which will be an omnibus as well as a carriage route. This is certainly a defect to be avoided if possible. But a more serious deficiency, and one which seems to have been quite overlooked by those who have criticised the plan, is, that although the block at Hyde Park-corner itself will be relieved, the block (which is nearly as constant and as inconveniently felt) at the foot of Hamilton-place will be scarcely touched by the alteration. There will still be the difficulty experienced from sending one great stream of traffic, from Pimlico northwards, across the great stream of the Piccadilly traffic. The constant delay and frequent collisions at this point will be in no way lessened, or only very slightly, by the new plan. An ideal arrangement would be one which would concentrate the more crowded, and what may be called the rougher, traffic in one line, and keep it clear of the equestrian and carriage traffic direct to Hyde Park. We are inclined to think this may be done with a re-adjustment which would leave the essential merits of the scheme unimpaired, or by the scheme of carrying one road over another, which was long ago proposed in our pages by the late Mr. E. M. Barry; but the time is too short this week to expound such a plan in detail, which could hardly be done without further illustration than mere words could afford. If with this could be combined the retention of the Wellington Arch in its present position (and we believe it can), a most important advantage would be gained. The proposal to take down and rebuild the arch is an objection in more ways than one. It would greatly increase the expense of the alteration (which we believe has been under-estimated); it would remove the arch from what may be called its historical position, which is, in itself, undesirable; it may lead to some injury to the structure, which, be it remembered is a fine specimen of its school of architecture (speaking of it quite apart from the statue, which was no part of its original design), and would have the further architectural disadvantage of placing the arch on lower ground than at present, and in a position in which it would have no reference to any other lines of building. The arch, if it is to form a feature of the *place*, ought to remain on the highest ground of the said *place*, as it would be if left where it is; and it will be far more capable of effective treatment if left where it now stands. And we surmise that when the scheme comes to be more maturely considered, the removal and re-building of the arch is likely to receive considerable opposition, and is an unnecessary expenditure of public money in a manner which will not give satisfaction when done. Further than this general criticism we do not go at present; but we may probably have more to say.

One point we cannot but press on the consideration of those concerned: that the opportunity should be taken of removing the equestrian statue from the top of the arch, for which it was never intended, and for which it is in every way architecturally unsuitable, the statue and the arch, in fact, mutually injuring each other. This has been pointed out so many times, and so many people seem still quite uninformed upon the subject, that we must be excused for calling attention to it once more at what seems a more opportune moment than has ever yet occurred. The statue should be placed on a pedestal of its own, of suitable proportion, and might then form another feature in the proposed *place*. We do not pretend that the statue is of any particular value from an artistic point of view, but it is so closely connected with the memory of a great man and of a nation's appreciation of him, that of course no one would think of cornering it. But it is perfectly out of place where it is.

We may anticipate one objection to leaving the arch where it is by observing that the present width of road between it and St. George's Hospital would probably be sufficient when the relief of the traffic is provided for by the new road. But we wish to emphasise the point, that the block at Hamilton-place is hardly touched by the new scheme, and that it is one which will tend to grow worse rather than better; and if the public find that they have been persuaded into paying for so serious an alteration as the removing and rebuilding of the arch, for a scheme which leaves one of the two blocks just where it was, the carrying out of the scheme will hardly give the satisfaction which has been, we think, rather hastily expressed in the first instance. There are some practical difficulties, no doubt, in the way of lowering Hamilton-place and the new road to get under Piccadilly and Constitution-hill, but they are not so great impediments as would be involved in taking down and rebuilding the arch; and there would be the very solid advantage that the block at Hamilton-place would be absolutely done away with, and the scheme would really accomplish all that it professes to accomplish, instead of only half. It must be remembered that nothing like a tunnel is necessary; only a sunk roadway over which Piccadilly and Constitution-hill would cross on bridges, which might be made picturesque objects and additions to the general effect of the site. At all events, the idea of the sunk road should not be entirely abandoned until it can be shown that there is any other arrangement which will really get rid of the *whole* inconvenience arising from stoppage of traffic, which the proposed arrangement will not. It may be pointed out that a road low enough to pass under Piccadilly would be just about the right level at the point where it would approach Halkin-street, as the ground falls very rapidly. As far as we remember from a hasty inspection, the levels were not fully or truly represented in the model exhibited at the Houses of Parliament; the whole was too flat. The contour of the ground is, however, a very important element in the matter, every point in which should have full consideration from practical men before the work is really entered upon.

EDINBURGH ARCHITECTURAL ASSOCIATION.

At the usual fortnightly meeting of the above Association, held in their rooms, George-street, on the 22nd ult., Mr. McLachlan, president, in the chair, Mr. Andrew Dewar read a paper on "Dead and Living Architecture." Commencing by saying that everything may be broadly classed as dead and living, architecture, he showed, was no exception. By dead architecture he did not mean a building in skeleton or in decay; for a crowded hotel might, as a piece of architecture, and wanting the stamp of vitality in its style, be "dead as a door-nail"; while a structure once really alive in its art would live eternally, if only a crutch of it remained in position. The cause of architectural deadness was found first in the natural imperfection of architects; and secondly, in the more specific natural imperfection of architects in not endeavouring to master one style of architecture thoroughly, instead of dabbling in half a dozen; and further, in not designing every house, church, or dog-kennel that passed through their hands as if they were to live in, preach in, or sleep in, each themselves. Describing the tenements of the day, he said the houses were constructed to sell, not to inhabit; the doors were fitted for the perfect inlet of draughts, the fireplaces for the special object of smoking, the flues for the transmission of back smoke, the floors for the habitation of rats, while the cisterns provided a watery grave for the mice. Nor was sanitation overlooked, for ample ventilation was supplied from the street sewers. As an instance of dead art, the heads on the keystones of the Phrenological Museum were mentioned; for, while a head is an interesting object as long as it is attached to a body, it can be nothing but horrible when hamstrung and sawn off to the radius of an arch. The carving of the New University was called attention to. A panel facing Forrest-road had been commenced, in which panthers with floriated tails were visible, but the meaninglessness of this kind of decoration having become apparent in the execution, no more is to be done; and subjects illustrative of the class work of the University will be executed instead, so that the building may tell its own story, and in this way show itself to be alive and not dead. The stagnation in church form was also adverted to: a cross 800 years ago was set up as the true church form, and on this cross art was apparently to be crucified for ever. The paper gave rise to considerable discussion.

LEEDS ARCHITECTURAL SOCIETY.

At a meeting of this society on Thursday evening, last week, in the library of the Philosophical Hall, a lecture on "Dutch Architecture" was delivered by Mr. R. Phené Spiers, F.R.I.B.A., of London. The President (Mr. James Barlow Fraser, F.R.I.B.A.) occupied the chair. In the earlier portion of his paper, the lecturer described the civil and domestic architecture of Holland, omitting the cathedrals and churches, which had been described by him on a previous occasion. He stated that the architecture of Holland may be divided into five periods—1. That which belongs to the mediæval epoch, and which extends far into the sixteenth century, examples of which may be found in the cathedrals of Bois-le-Duc, Utrecht, and Haarlem, the town hall of Middleburg, and the Waaghuis of Deventer. 2. The work of the seventeenth century, including as examples, the town halls at the Hague, Haarlem, Kempen, and Leyden, and the Waaghuisen, or weighing-houses, of Leuwarden, Hoorm, and Alkmaar. 3. The architecture of the eighteenth century, consisting principally of buildings of pretentious but uninteresting character, based upon the French Louis XIV. style. 4. The work of this century, which is quite commonplace, without very much to redeem its ugliness. 5. Modern work. Many of the above-mentioned buildings, together with several others, came in for detailed description, and their several quaint and picturesque characteristics, arcaded porticos, pilastered and mullion-windowed fronts, curious crow-stepped and carved gable-ends of curvilinear outline, with here and there a tower, crowned with a belfry stage with bulbous lantern, cleverly grouping with the rest of the buildings, were illustrated by means of numerous exquisitely-drawn and tinted water-colour drawings, some of which were exhibited at

Burlington House last year. The remainder of the lecture was devoted to a description of the Plantin Museum at Antwerp, of which Mr. Spiers exhibited complete plans and some water-colour sketches, together with an extensive series of photographs lent to him for the occasion by Mr. Alma Tadema. This building still retains all the original arrangements of the sixteenth and seventeenth centuries, and is a typical example of a printing establishment of that period. At the conclusion of the lecture, a vote of thanks was unanimously accorded to Mr. Spiers, on the motion of Mr. Thomas Ambler, seconded by Mr. J. Kelly.

THE LONDON PARKS AS FOG FACTORIES.

HAVING been a resident in, or close to, the Regent's Park for a great number of years, I am in a position to confirm the statement as to the defective surface-drainage of the Park made in the extremely able and interesting letter from Mr. W. H. White, which appeared in your columns last week. It is far from my intention to play the part of the dirty bird of the familiar proverb, and asperse my own nest, since my reason for continuing to live in the Park is a conviction, founded on very long and careful observation and experience, that there is no more thoroughly healthy, convenient, or enjoyable place of residence to be found in London. But with reference to the question of London fogs, it is a true indictment against the Regent's Park that it is, as is presumably the case with the other London parks, a brewery of mist, doing a brisk and regular business on an extensive scale. The whole area was, no doubt, elaborately drained some years ago, but the pipes were laid at so excessive a depth that, although they may possibly work in an energetic and beneficial manner in their own remote sphere, the surface of the ground is quite unaffected by any action on their part. The consequence, which any one who will walk across the park can verify, is that the surface is always more or less sodden, except in very dry weather. After any heavy rain, a number of lakes of various dimensions appear in different places, and take a long time to soak away or evaporate, assuming, some time before their departure, the character of slimy bogs. In times of drought, when the water which forms so considerable a proportion of the bulk of the soil has been withdrawn, fissures, which are suggestive of the story of Korah, Dathan, and Abiram, gape in all directions.

What is wanted to render the ground wholesome, and to cause it to be a less fruitful parent of fog, and a veritable *nimborum patria*, than it now is, seems to be the very simple, necessary, and obvious expedient of providing some ready and available means of escape for the rain which falls upon it. In Sussex, where I have a house, and where the weald is, mechanically speaking, though not in its mineral constituents, the exact counterpart of the London clay, deep draining, in the case of soil which is disposed to be obstinately retentive of moisture, is not found to answer. It is considered a mere waste of money to bury pipes, and therefore capital, at a depth of between 3 ft. and 4 ft. The water is so long in reaching them that the evils of total want of drainage are hardly reduced by their existence. Were they absent, the water would, no doubt, eventually escape by some means or other, and no more slowly than it does with their assistance. My own experience is very small, but it is entirely confirmed by that of one of my neighbours, who is among the largest landowners in the county. Mine is confined to a patch of 12 acres, which was drained after the exact pattern of Regent's Park, and at the same time; but I do not remember the precise depth at which the pipes were laid. The ground remained as muddy and gluticous as before; but I afterwards laid pipes at 2 ft., leaving the original ones untouched, and the result has been that the soil is now, on all occasions, completely and at once relieved of surplus water, and, instead of resembling new cheese in point of consistency, it is becoming comparatively light and friable in texture. A clergyman of this district who was imported from a Northamptonshire rectory tells me that he deep-drained the whole of his glebe-land there, which was clay, without the slightest effect whatever.

After all, there seems to be no occasion to refer to any controverted principles of draining, or to examples of the result of one system or another. The whole disquisition on the drainage of the park, illustrated by a capital working diagram, is best presented in the form of a mere statement of the actual and palpable condition of the ground, which should be verified by inspection of the spot. If the authorities who are responsible for the defects which exist should at any time contemplate some action in the matter, it ought to be remembered, as an encouragement to them to proceed, that the case is one which by no means concerns the residents in the park only, but the whole population of the metropolis; for the double reason, that it is desirable to secure that "the lungs of London" shall be supplied with air which is free from marshy effluvia, and to preclude the wholesale generation of fog. The expense, of course, of draining at 2 ft. would be very much less than that which was incurred in the deep-digging for the abortive operations of some years ago, and there would be no occasion to disturb the complete repose of the existing pipes, which may remain *in situ* to discharge any functions which they can be imagined to exercise.

It might be possible, perhaps, in arranging for outlets to new drains, to get some advantage through the old expedient of constructing what are called "blind wells,"—that is to say, rough shafts sunk through the clay into the first porous stratum below it. Pipes which are led through the side of a blind well discharge their contents into what is, practically speaking, a bottomless pit. In the Regent's Park, the overcoat of clay which covers the sand is probably thin here and there. The house from which I write, and those adjoining it, are all built on sand, which was very soon reached when the soil for their foundations was excavated.

T. W. ERLE.

Cambridge Gate.

SILICATED STONE AND ITS USE FOR DRAIN PIPES.

SILICATED STONE is now coming largely into use, and appears to have a wide future before it. A visit to the works of Messrs. Hodges, Butler, & Dale, at East Greenwich, shows the great extent to which the material is now being made and used, not only in the form of the "Imperial" stone paving, but for lintels, cills, steps, and a variety of other purposes, including the making of drain-pipes. The "Imperial" paving, owing to its durability, and its cheapness as compared with the price of York paving in the southern counties, is being extensively used. The aggregates employed in the manufacture of the material are clean Thames gravel, crushed by machine, furnace or iron slag, Kentish rag stone, granite chippings, or other approved materials, broken to the requisite degree of fineness by a Blake's stone-breaker. The ingredients are accurately mixed by measure in the proportion of 1 of Portland cement to 2 or 3 of aggregates (according to requirements), and with a minimum quantity of water, in an ingenious mixing-mill of American invention. The paving slabs are made in shallow moulds framed with wood and lined with sheet-iron. The mould, during the time a slab is being moulded, is fixed to a very ingenious, though noisy, machine, called, from its continual shaking, the "Trembler." The mould being adjusted to this machine, the latter is set in motion, and the fine concrete (for such it is) from the mixing-mill, is fed into the mould as the latter vibrates up and down on the machine, a couple of men, armed with ordinary bricklayers' trowels, arranging and smoothing the material while the mould containing it continues to vibrate. This trowelling, of course, requires some dexterity, but the knack is soon acquired. The object of the vibratory motion imparted to the mould is, of course, to consolidate the material, and to secure smooth and perfect moulding. A 3 ft. by 2 ft. slab is thus made in less than five minutes from the time the ingredients were put into the mill. The slabs are kept in the moulds for three or four days, and then placed in a bath of solution of silicate of soda for about a week. This secures the induration of the slabs. They are then kept for about three months before being sent out.

The silicated stone pipes are made in a similar manner, the details of the moulding apparatus varying, of course, from those used for slabs, cills, and lintels. We need not, however, stay to distinguish and describe these details, but will pass on to notice the results of some experiments recently made at the works (and witnessed by us) to test the comparative strength of these silicated stone pipes and good stoneware pipes. The tests were made in the following way:—To one of the vertical piles or timbers which support the roof of one of the buildings, a timber lever, 15 ft. long, was pivoted. Near the pivot, and a short distance in front of the pile or upright referred to, was the fulcrum, which was a piece of 3 in. by 3 in. quartering, shod with iron at the top, and resting at the bottom with its full sectional area on a piece of 2 in. batten, 1 ft. 7 in. long and 4½ in. wide. This piece of batten was slightly hollowed out on its under surface for its whole length, so as the better to rest on the pipes to be tested. All the pipes tested were evenly laid on a balk of timber covered with a sack, the socket or collar ends of the stoneware pipes being, of course, left perfectly free. On the other end of the lever,—that is, 15 ft. away from the fulcrum,—a cask was suspended, and this was gradually filled with gravel until the weight borne by the fulcrum was sufficient to fracture the pipe on which it rested. All of the six pipes tested were tried under precisely similar conditions. The following table shows the weights required to fracture the pipes, tabulating them in the order in which the tests were made:—

No. of Experiment.	Description of Pipe.	Weight required to cause fracture.
1	9-in. Stoneware	2,873 lb.
2	9-in. Silicated Stone	4,058 lb.
3	9-in. Stoneware	2,438 lb.
4	9-in. Silicated Stone	3,683 lb.
6	9-in. Stoneware	3,293 lb.
6	9-in. Silicated Stone	3,953 lb.

It will thus be seen that while the average weight required to fracture the stoneware pipes was 2,868 lb., the average weight required to fracture the silicated stone pipes was 3,898 lb., or 1,030 lb. in excess of the average weight which fractured the stoneware pipes. The main lines of fracture were in the direction of the length of all the pipes tested. The results of these experiments do but confirm other experiments which have been made to test the strength of the silicated stone pipes, which possess the merit of being perfectly true in section. The joints are of ogee form, moulded in the whole thickness of the pipes, so that they are easily put together, a little liquid Portland cement being applied to the joints by a brush. Joints made in this way have stood some remarkable tests.

Altogether the material and the goods made of it are well worthy of the attention of visitors to the Building Exhibition at the Agricultural Hall, where Messrs. Hodges, Butler, & Dale have a stand (No. 50).

PHOTOGRAPHY AS CLERK AND DRAUGHTSMAN.

IN employing photography in the capacity of a clerk or draughtsman, there is always one inestimable advantage: you can rely implicitly upon the truth and correctness of the result. And this quality, we believe, is likely to cause photography to be employed in years to come to a very great extent in the bureau of the statesman, the counting-house of the merchant, the office of the lawyer, and the workshop of the engineer. True, we have now-a-days many clever autographic copying processes,—the gelatino-glycerine cake is one of the simplest and best,—by means of which a writer may take one or more copies of his manuscript; but these, if they render photography unnecessary in certain instances, do not restrict the usefulness of the art in any degree. The *Photographic News* says:—There can be little doubt that prepared photographic paper will soon be found in every large office where valuable documents abound. The labour saved, as well as the accuracy assured, are already important points, and when to these is added the circumstance that a *fac-simile* is the result, firms of many kinds will not be slow to avail themselves of the advantages of photographic copying. With a camera at one's disposal, it is possible, of course, to do yet more, for huge manuscripts may in this way be reduced to small dimensions, while their intrinsic value yet remains. But to use a camera, more photographic skill is required. Very little knowledge, on the other hand, is required for simple photographic printing of the nature we have mentioned, and with its aid the duties of clerk and draughtsman may often be advantageously discharged.

VENTILATION AT THE LONDON CUSTOM HOUSE.

SIR,—I am sorry to have injured or offended Mr. Boyle, and am quite willing to correct any mistakes in detail I may have made, and would gladly admit his system to be right, and my theories wrong, should they be so; and, indeed, I should rejoice at such a result, as saving much further trouble, for I have no interest in the matter other than an architect should have, namely, to ascertain and adopt the best.

The points, however, in which he corrects me seem to be of small importance, and not to affect the main issue, which is, whether the system adopted at the Custom House be successful or not, and whether the special appliances used there are the most suitable for the purpose.

I do not regret having brought the matter forward, not only on its own account, but because I am sure that serious public injury is done by the numerous unreliable sanitary appliances advertised and sold. But recently, I discovered that I had been for years worse than uselessly paying rent for a filter, since, on having the water from it analysed, it proved more impure than that in the cistern outside it. While I was honorary secretary of the Royal Institute of British Architects I helped to give Messrs. Boyle the opportunity to ventilate, at great cost, the meeting-room in Conduit-street; and, after several years' painful endurance on the part of the members, all those appliances were removed, and another system adopted.

The system of ventilation used at the Custom House consists simply of certain fresh-air inlets and foul-air outlets. All the former were, on the occasion of my visit, in but moderately cold weather, sealed by ledgers, and the room reduced to its previous condition as regards fresh-air supplies, unless the outlets act, as Mr. Boyle denies that they can occasionally, by means of down-draughts, in both capacities. If I am not allowed to say that under such circumstances the system is a failure, I must leave to others than Mr. Boyle and myself to pronounce whether or not it be a success.

It is, however, I think, desirable that it should be known who has given a favourable verdict of it; for I take the abnormal use of the ledgers of the establishment as an expression of that of the occupants of the room. Mr. Boyle also admits the necessity for and non-existence of means of warming the supply of fresh air, which was one of the points to which I called attention. It is a vital one, because, as I have always maintained, no system of ventilation can be satisfactory that does not temper the cold of the air-supply, and that every heating apparatus should be made a fountain of fresh air from without the building.

But I must ask the following questions, which, I think, demand answers. Did Mr. Boyle himself frame or dictate the laudatory report that induced me to visit the Custom House? Did the so-called body of scientists ever frame any report, or try any series of experiments? Or was all that took place that certain gentlemen were asked separately and individually to inspect the alterations before the system was complete, in consequence of which some of them refrained from giving any opinion at all?

I admit that the outlet ventilators, of 3 ft. diameter, are above the roof, and that the divisions of which I spoke are in the base of these, and not in the shafts below, which are only 1 ft. 6 in. in diameter. Still, it seems to me that the points I raised apply equally to these conditions, and I am ready to be, but am not, convinced that these ventilators are other than obstructions to the capacity of the smaller shafts as outlets, or whether more foul air would not pass out if the "air-pump" arrangements were removed, and a means of regulating down-draughts with merely rain-guards, or other existing cowls, substituted.*

Mr. Boyle's main accusation against me is, that I favour Mr. Banner, whom I did not mention in this matter. I know Mr. Banner only as I do Mr. Boyle, in connexion with sanitary experiments in which I have no personal interest. I once criticised his system, and was courteously invited by him to inspect it further, when I tested it in various places, and under different conditions, and became convinced by the results, and have since occasionally adopted it, as at Lambeth Palace, where I placed a Banner's cowl on the top of the "Lollard's Tower," where it still stands, extracting much foul air with advantage from a large drain below.

JOHN P. SEDDON.

SIR,—Mr. John P. Seddon appears to be under some misapprehension when he wrote the letter which appeared in your issue of the 11th ult.

No report was ever made by the body of scientists referred to, nor, in fact, any series of experiments tried by them.

All that took place was, that certain gentlemen were asked separately and individually to inspect the alterations made in the ventilation of the "Long Room" of the Custom House.

Speaking for myself only, I may add that I carefully avoided expressing any opinion upon the system of ventilation adopted, which was not completed at the time of my inspection; although I believe I was one of the last who visited the building.

ERNEST TURNER.

*** We have received the following letter sent to Messrs. Boyle from the Custom House, in reply to a letter from them, and which we must consider terminates the matter in Messrs. Boyle's favour:—

Long Room, H.M. Customs, London,
28th March, 1882.

GENTLEMEN,—In reply to yours of the 27th inst., I have to inform you that I have conferred with the other members of the Long Room Ventilation Committee, and to state that we are unanimously of the opinion that your ventilation appliances have been a success.

It is evident that no system of ventilation in so large a space as the Long Room can be rendered so perfect as to suit all idiosyncrasies and temperaments, but I confidently assert that we have enjoyed, since your appliances have been in action, a purity and clearness of atmosphere to which we had long been strangers.—I am, &c., H. HANCOCK HOOPER.

To Messrs. R. Boyle & Son.

RIVAL COWLS.

SIR,—The subject of ventilation,—a most important and difficult one,—seems by your columns of the last week or two to be again under discussion.

My name and my system of ventilation have been imported by Messrs. Boyle, improperly, I think, as the cause of what must now be considered the point in dispute, viz, is the Boyle or the Banner system really the best? If I am right as to this, I am glad it is so, and this point I venture to think can be easily and conclusively determined; but if what Messrs. Boyle have said were true, viz., that the Banner cowl is "practically out of the market," I should, besides being out of the ring, or, to speak more correctly perhaps, out of the charmed circle,—absolutely have no standing-ground anywhere. I will endeavour to show presently that I have at least the latter; and if I am considered to have that, I will then most willingly take up Messrs. Boyle's challenge, and fight it out to the end,—the agreeable end to one of us,—for the satisfaction of all lookers on. All they will say, speaking as it were with one voice, will be, "Let right be done." There has been much time spent so far in useless sparring; for the present combat, I submit it will be best for both of us to throw the gloves aside, and each be permitted to hit as hard as he can, always fair, of course, and "above the belt." Of course, "air-pump" is a mere name; for, as Messrs. Boyle state, all cowls, &c., that is, if they deserve the name of ventilators or exhausts, as compared with a mere pipe, for the escape of air up them, are air-pump ventilators, actuated by the wind.

Messrs. Boyle insinuate that Mr. Seddon has some interest in the Banner cowl. I most emphatically state that he neither has, nor ever had, any whatever, and I have scarcely ever seen him since he accompanied his brother to my house, over six years since, soon after I first introduced my system to public notice, an account of which appeared in your journal of December 11th, 1875.

I protest strongly against the interested and libellous assertion of Messrs. Boyle that the Banner cowl is "practically out of the market." It is true that at the Medical and Sanitary Exhibition, at South Kensington, no mention was made of it, or of anything else which I exhibited, though it is also true that some of those things were quite new; this, if occasion arises, can, I have no doubt, be satisfactorily accounted for. So far, then, I seem to have no standing-ground; but I was awarded a gold medal at Brussels, in 1880, and at the Exhibition at Eastbourne, and afterwards at Brighton, where Messrs. Boyle and myself had exhibits side by side, we both, at each place, obtained awards of equal degree, but at both these places, as well as at the Exhibition at Sunderland since, the awards were given to me for my system. I quite admit that the awards given at exhibitions are very generally considered, and I think deservedly so, the reverse of satisfactory. Messrs. Boyle complain that Mr. Seddon has written in favour of the Banner cowl; so have many others, as shown at pp. 34, 85, 90, 110, 114, 115, 116, 119 of the new edition, just published by Stanford, of Charing-cross, of "Wholesome Houses," which mentions it, so that your numerous readers who are interested in this important subject may refer thereto.

I may, perhaps, have said enough to show that the Banner cowl is not "practically out of the market." I will add, however, that many thousands have been made, and that I receive most gratifying reports of their efficiency from all parts of the country.

At page 71 of "Wholesome Houses" will be found a report of the alterations I made at the Council Chamber, Guildhall, which were almost universally admitted to have produced a satisfactory result as regards ventilation. In it I pointed out that I had been requested to ventilate, not to warm, the Council Chamber. Messrs. Boyle have undertaken, I presume, not merely to effect a "satisfactory" result, but a better result than I did.

The testimonial at page 115 of "Wholesome Houses" gives the result produced in a sewer 1,200 ft. long with one 6-in. Banner cowl. At Montpellier-road, Brighton, a like result has been produced, the sewer there being 2 ft. 8 in. by 2 ft., 500 ft. long, and the satisfactory result worked out has been witnessed by six gentlemen anxiously interested in sanitary science. A like test has also been ordered to be made by the Works Committee of Hove, under the supervision of Mr. E. B. Ellice-Clark, the town surveyor, and a 12-in. sewer, about 1,000 ft. long, has been selected for the purpose; in this case, as in the former, all the gratings or "ventilators" in the streets, except one at the extreme end of the sewer, will be entirely closed, and I am now taking out a patent for a combination by which I shall be able to close that one also.

As I have before now said, referring to the efficiency and simplicity of my system, the question will resolve itself into this, viz., which cowl or ventilator will most constantly and most effectually exhaust, and with the least down-draught? And now I challenge Messrs. Boyle to prove, the conditions being the same for both, that the Boyle air-pump ventilator is superior in the essentials I have mentioned to the Banner rotating or fixed finial ventilating cowl, stakes 100*l.* a side. And I would suggest, as I believe no better place for the purpose can be found, that the tests should be made, simultaneously of course, on the double lantern above the dome of the Council Chamber at the Guildhall, by the City Architect and his chief assistant, the disputants first agreeing that the conditions are fair and equal for each other at the start of the anemometers. Each of them to be present, also, at the end of the tests, for whatever time they may be fixed. Two anemometers,—one to record the up-draught only, and the other the down-draught only,—to be fixed at the bottom end of each shaft. As it may be very difficult to make the anemometers to register *precisely* alike, being made as near as need be alike, Messrs. Boyle may have the choice of them, and if Mr. Boyle wins I hope he will be presented with the freedom of the city of London in a gold box.

EDW. G. BANNER.

*** Having admitted Messrs. Boyle's assertion as to the Banner system, we have printed the above reply; but we must decline carrying on the correspondence. Our able Brethren of the Cowl seem to possess a 40-pen power, and could fill any number of our pages at any time,—more to their own satisfaction, however, than that of our readers generally.

The Theatre in Russia.—The Emperor has authorised the well-known president of the Society of Russian Dramatic Authors, M. Ostrofsky, to build a private Russian theatre at Moscow. This is the first time, it is believed, that a theatre has ever been left to private enterprise in Russia.

* The writer proceeds to ask some other questions, but as we are not prepared to afford space for the replies it would be useless to insert them.

BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

ANNUAL DINNER.

The fourth annual dinner of the Builders' Clerks' Benevolent Institution was held on Monday evening last at the Guildhall Tavern, Mr. Arthur C. Lucas (of the firm of Lucas Brothers) in the chair, supported by about 150 of the friends of the Institution. The usual loyal and patriotic toasts having been given and received with due honours (Major John Aird, of the Engineering Staff Corps, responding for the "Reserve Forces"),

The Chairman proposed the toast of the evening "The Builders' Clerks' Benevolent Institution." The Institution, he said, was founded in the year 1866 for the relief of necessitous clerks of builders, their widows, and families. In the first year of its existence the subscriptions amounted to 292*l.*, and 12*l.* was expended in relief. During the past year the subscriptions and donations amounted to 536*l.*, while 215*l.* was expended in relief. Great, however, as had been the increase in the income of the Institution, the receipts had not increased in anything like the same degree as the expenditure, or in anything like the proportion which they should assume, having regard to the importance and extent of the building trade. He trusted that there would soon be evident a marked improvement in that respect. He found that the master-builders and merchants connected with building were well represented as subscribers to the funds of the Institution, but he did not think that the class for whose special benefit it was intended supported it in adequate numbers, and until they did so the Institution would not rest on the basis on which it ought to stand. He could vouch for the able and economical manner in which the work of the Institution was managed, and congratulated the members upon having a business-like committee and admirable officers. There were no heavy office expenses connected with the administration of the charity; it was purely and simply what it professed to be, viz., the Builders' Clerks' Benevolent Institution. The building trade, as they knew, was subject to great fluctuations, there being sometimes a press of business and sometimes a slackness. When slackness prevailed, staffs were reduced, and builders' clerks, through that cause and through illness, might find themselves so reduced in circumstances as to be glad to avail themselves of the help which the Institution afforded alike to subscribers and non-subscribers, who stood on an equal footing, except that former subscribers or their relatives who might seek annuities from the Institution would poll, to start with, ten votes for every guinea subscribed. In conclusion, the Chairman appealed to all present to do their best in support of the Institution, which, he said, deserved well of those for whose special benefit it was intended.

The toast was enthusiastically received.

Mr. Stanley G. Bird proposed "The Architects and Surveyors," observing that the architects had done great things of late years in altering for the better the face of our great city. The work of the surveyor was not quite so apparent to the general public as to builders and builders' clerks, who were often very much indebted to the surveyors, although, if not properly up to their work, they sometimes made matters worse when they were called in. Not very long ago he had heard a proposal for "ordaining" all building surveyors gravely discussed. He believed that some such system obtained in Scotland, and worked very well there. How it would answer here he could not say. With the toast he begged to couple the name of Mr. H. Matthews.

Mr. Matthews, in reply, observed that whatever might be said about surveyors, he believed they saved more squabbles than they caused.

Mr. E. C. Rae, in a humorous speech, proposed "The Builders, Our Masters," observing that many of the best builders had been builders' clerks in their time, and possibly some of the clerks present might ultimately develops into that glorious caterpillar, the British Builder. But when he used the word "builder" he meant builder: he was not thinking of the ingenious gentlemen who wrought powerfully in the "Peckham Rye Italian" and the "Stoke Newington Stucco Gothic" styles. The Egyptians, whatever their sanitary arrangements might have been,—probably they kept them outside,—were certainly builders of enduring works; and yet, amongst the valuable papyri that had lately been discovered, he had found no mention of such things as bills of quantities or bills of extras, or of any of the things which caused trouble in building matters at the present time. In conclusion, the speaker expressed the thanks of the builders' clerks for the interest which the masters took in their welfare.

Mr. Howard Colls responded on behalf of the Master Builders.

The remaining toasts included "The Past-Presidents" (proposed by Mr. E. Brooks and coupled with the name of Mr. Stanley G. Bird); "The President" (proposed by Mr. Bird); and "The Officers" (proposed by Mr. E. C. Cox, and responded to by Mr. H. T. Bayes, treasurer, and Mr. Wheatley, secretary).

During the evening, donations and subscriptions to the amount of 180*l.* were announced.

AN EXPERIMENT IN MASON'S AND PAVIOR'S WORK CONTRACTS.

Some of the members of the Vestry of St. Luke, Middlesex, being under the impression that by offering the contract for mason's and pavior's work for a longer period than one year the prices would be less, invited tenders for one, two, and three years respectively, but the result both last year and this has been that the shorter the period the lower are the terms. The prices of the tenders received by the vestry last week varied from schedule prices to 12½ off schedule prices. The lowest tender, that of Messrs. Wheeler & Hindle, of Bankside, was accepted; for periods of two or three years only 10 per cent. would have been taken off the schedule of prices.

SPECULATING BUILDERS AND BY-LAWS.

A second batch of summonses were last week disposed of by the Hove (Brighton) bench of magistrates, when Henry Pinker, Walter Pinker, and Henry Marston, all speculating builders of Hove, were summoned for committing breaches of the By-laws for new buildings. The first summons charged them with not solidly putting the walls of certain houses together with mortar; the second summons charged them with disobeying the notice of the surveyor to desist erecting and to pull down the buildings. The case of the last-named defendant was adjourned for fourteen days to enable him to pull the walls down.

The two other defendants pleaded guilty. In both cases the result of an analysis of the mortar by Mr. Jago, F.C.S., showed the presence of large quantities of loam and chalk. The analysis in one case giving, by measure, these remarkable figures:—

Gravel and sand	1·744
Carbonate of lime (chalk)	1·275
Quick lime	1·000
Loamy earth	0·951

Mr. Ellice-Clark, C.E., the prosecutor on behalf of the local authorities of Hove, proved the cases, and the magistrates fined each of the defendants 5*l.* for disobeying the notice of the surveyor and 40*s.* for the bad work. The Chairman of the Bench, Mr. Hurlock, stated that during the hearing of the last case witnesses said this mortar was a fair average sample of what was used in the district, a statement he did not believe, as he knew from personal observation such was not the case; it was a gross libel on many respectable builders, whom it would be invidious to name, and he trusted these wholesome prosecutions would have the desired effect, and put a stop to jerry building. Builders should know that they were liable to a continuing penalty from the moment the surveyor served them with notice to amend the work.

It is satisfactory to know that at their last meeting the Hove Commissioners unanimously and without comment affirmed a resolution of the Works Committee, ordering the surveyor to take down the condemned work in the houses to which we lately referred, and this is now being proceeded with. We are pleased to see that the Hove authorities are alive to the importance of their duties, and wish other corporations would follow; for it must not be supposed that jerry building obtains largely at Hove; on the contrary, many of the small houses erected there are superior to the small houses being erected by thousands round London and in many provincial towns, where the by-laws are utterly disregarded.

DISTRICT SURVEYORS' FEES.

At the Lambeth Police-court, on the 23rd ult., before Mr. C. E. Ellison,

Mr. Henry Parsons, District Surveyor of South Lambeth and part of Camberwell, summoned Mr. William J. Mitchell, builder and contractor, of Dulwich, for refusing to pay the sum of 18*l.*, his fees on a range of stabling erected for Mr. Thomas Tilling, omnibus proprietor, &c., in the parish of Camberwell. Mr. George R. Edmunds, solicitor (Messrs. Edmunds & Son) appeared for the defendant.

Mr. Parsons, in cross-examination, said that one notice only was given under the 38th section of the Act, 1855, and that he did not demur to it; that there was no "party wall" in the whole building, the walls dividing the eighteen stalls or loose-boxes being "cross-walls"; that he had refused 4*l.* 15*s.* which defendant had offered as the proper fee; and that Messrs. Henry Jarvis & Son were the architects responsible for the plans, and under whose supervision the works were carried out.

The Magistrate said he would not be a party to the multiplying of fees in cases like this, and held that one building only (and not eighteen) was designed and constructed.

Order for payment of 4*l.* 15*s.* No order as to costs.

INFRINGEMENT OF BUILDING BY-LAWS AT TOTTENHAM.

At Edmonton Petty Sessions, before Mr. H. Nash and Mr. J. B. Doe, Messrs. Bowitt & Hughes, builders, of Hornsey, were summoned for contravening By-law No. 12 of the Tottenham Local Board of Health in building three houses in Waverley-road, Park-lane, Tottenham.

Mr. Crowne, clerk to the Local Board, appeared in support of three summonses in respect to three houses erected by the defendants, which were not "enclosed with walls constructed of good brick, stone, or other hard and incombustible materials, properly bonded, and solidly put together with good mortar, compounded of good lime, clean sharp sand, or other suitable material, or with good cement, or with good cement mixed with clean, sharp sand," as required by the By-law No. 12.

Mr. De Pape, surveyor to the Local Board, and Mr. Wilson, surveyor of buildings, gave evidence of the walls not being properly bonded to the end walls, and as to the mortar, samples of which, taken from the brickwork and heap adjoining the houses, were produced in court, and declared to be totally unfit for use as mortar, there being in it very little lime, and that, evidently, spent lime.

Mr. Peckham, solicitor, who appeared for the defendants, urged on behalf of the defendants that the fault was not that of the defendants, but of a man in their employ. The defendants were fined 5*l.* for each of the three houses, with costs.

THE DECAY OF BUILDING MATERIALS.

Sir,—Your correspondent, "G. R.," asks "why the masonry disintegrates so rapidly at the present time?" The question has been discussed so often in your own and other journals during recent years, that the postulate rather surprises an elderly man. Assuming, however, that "G. R." is comparatively young, I beg to offer the following notes on the subject of his inquiry. The freestones were originally deposited in successive layers of water; drying and parting with their water afterwards, they altered in their dimensions, and contracted, cracking irregularly. Thus lamination, the source of their destruction in buildings, is formed. They are exceedingly porous, and (as masonry) absorb moisture from the air and rain of our wet climate. Constant expansion and contraction of this moisture within the substance of the stone takes place during every twenty-four hours. This expansion, when it precedes freezing, acts with irresistible force, and with such rapidity, as not to give time for the excess of moisture to be drawn out as it came in. Some stones, of course, decay sooner than others. Those that are the most crystalline contain the fewest crevices, and are therefore least absorbent. These facts sufficiently indicate the cause of destruction. In addition, however, the moisture of the air and the rain in London are impregnated with various gases,—carbonic acid, from millions of men and animals; sulphurous acid, from gas illumination; ammonia (another result of animal life); hydrochloric acid, from the Lambeth potteries; and unconsumed carbon or smoke, which hangs like a pall over the city. These gases are all soluble in water, and are absorbed into the pores of the stone.

These facts, moreover, account for the gloomy and unsightly effect of the smoke-blackening of our elaborate and costly public buildings, for soot is carried with the water into the body of the soft stone, which is therefore quite unsuitable for city architecture. In London the whitest Portland stone is defiled in a few weeks. The remedy, in my own opinion, is the use of the igneous rocks, combined with a modification of style, which you have allowed me to suggest more than once in your interesting journal.* It is much to be desired, in the interest of

* See *Builder*, Dec. 3, 1881, for "Pietra Dura Architecture."

true economy, that Mr. Shaw-Lefevre, or whoever in the Office of Works is responsible for the good and sound construction of the national buildings, would take a step in advance when giving, at no distant day, the usual instructions for the designs for the intended New War and Admiralty Offices. The necessity for this would be strikingly shown if some hon. member would call for a return of the cost of restoring the Houses of Parliament.

The buildings mentioned by "G. R." are all more or less decayed. HENRY TRAVIS.

ARCHITECTS' COPYRIGHT.

SIR,—A curious point has arisen in my practice, on which your advice and the opinion of your readers would be highly acceptable. I am employed by a Board in the country to erect certain public buildings, for which I have prepared working-drawings and specification in the usual way, and which are now being carried out under my superintendence. For some reason or other (though what it may be I cannot guess), and without my knowledge or consent, the Board have ordered my specification to be printed, and copies have been distributed to all the members, and I know not to whom else.

The point of professional practice is, whether the Board have, in employing me, bought also the copyright of my specification, and the right to scatter it broadcast as the members choose? The document in question is one which embodies the results of twenty years of special study, which is certainly not paid for by the five per cent. commission on one structure.

The right, if it belongs to the Board, to copy the specification, can easily be extended to the drawings, and the whole of an architect's professional training be placed at the mercy of a careless or an interested Board-man. A COUNTRY ARCHITECT.

EXCHANGE STATION, LIVERPOOL.

SIR,—By the paragraph which you recently quoted from the *Bootle Times* anent the re-construction of the above, the public may be led to suppose that the advisability of doing away with the very steep and unsatisfactory approaches to this station had only recently been brought under the notice of the directors of the Lancashire and Yorkshire Railway Company by Sir John Hawkshaw.

Permit me to correct this impression by stating that a design providing for the reconstruction of the station on a level with Tithebarn-street was prepared and sent in at the time of the late competition.

Herewith I enclose you a copy of the description of the design submitted under the motto "Questi," and which, I believe, was the only set sent in showing the practicability of working the station without the inclined approach. It is well known that the three premiated designs maintained the approaches somewhat in their present objectionable position; I need, therefore, say nothing upon the fairness, or otherwise, of the award of Sir John Hawkshaw, than to call attention to the fact that although he gave premiums to the designs with such approaches, he does not hesitate to recommend the principle of the "Questi" design as being the most suitable for the purposes of the Company.

J. H. ANDREWS.

BRICKS.

SIR,—In answer to "P. P. C." we have at our Etruria Works both the moist steam utilised, also moist heat from the kilns, according to Mr. C. Cooper's process, and shall be pleased to give all information. GEO. WOOLLISCROFT & SON.

MESSRS. LINGARD & BUCHANAN say,—"The system you refer to is to be seen in operation at the works of the Harrowden Brick and Tile Company, Hill Top, Harrowden, near Wellingborough, Northamptonshire. The above is part of the system connected with Cramp's Patent Kiln."

THE GENERAL FOREMAN.

SIR,—Being a practical man, and a general foreman of some twenty years' standing, I wish to say a word in contradiction to your correspondent "T. M."

It is not only now getting to be very general to appoint a general foreman, but has been so for many years, even before I started in this line of business, and I must say that, instead of its being a mistake on the part of builders, it is, under the present conditions of the trade, a matter of necessity in all works of importance, and if done more generally on small works the builders would very soon find the benefit in their cash account.

No doubt he is right as regards a general foreman not having a practical knowledge of every trade, but, if he is a general foreman in the true sense of the word, he has a general knowledge, and is so far practical that he can instruct and direct mechanics, the result being a better job, while workmen generally appreciate his advice.

Master builders, as a rule, do appoint a foreman over each trade, who is subject to the directions of the general foreman. There is no doubt there are masters in the building trade who do not properly understand it, and who may, in consequence, appoint a man as foreman who is not competent (hence the number of failures spoken of), but I do not see why, if this occurs, your correspondent should put all down as blockheads.

I am quite confident that if there were no general foremen, the works would be messed about, and mistakes and confusion would be the result, and many more master builders would be ruined than is the case at present.

A PRACTICAL FOREMAN.

"COLOURING PORTLAND CEMENT."

SIR,—I can recommend "W. S. M." to use "Astbury's" Patent Varnish Paint. I have known walls in hospitals, and offices, &c., in railway stations, which have been treated with this paint, and no amount of washing seems to have any effect.

B. S.

VARIORUM.

MR. ARTHUR G. HILL, B.A., F.S.A., of Jesus College, Cambridge, has ready for the press, and is about to publish for subscribers, a work which ought to prove valuable, "An Essay on the Organ-cases and Organs of the Middle Ages and Renaissance." This will be an imperial 4to. volume, and will contain artistic and musical memorada, &c., but the chief feature will consist of numerous drawings, from the pen of Mr. Hill, of the finest and most remarkable Gothic and Renaissance organ-cases from churches in various parts of France, Germany, Holland, Belguim, Italy, and Spain, illustrating these master-works of the 14th, 15th, 16th, and 17th centuries.

Miscellanea.

Artisans and Labourers' Dwellings.—The Select Committee of the House of Commons appointed to inquire into the subject of Artisans and Labourers' Dwellings, resumed its sitting on Monday morning, Sir Richard Cross presiding. Dr. Gibbon, the medical officer of health for Holborn District, whose examination was not concluded at the last sitting of the committee, was re-called, and in continuation of his evidence, said he knew the district of Gray's Inn-lane well, and the improvements started there in 1877. The working of the 33rd section of the Artisans' Dwellings Act had greatly impeded, and had, in fact, stopped, the carrying out of the improvements during the last five years. A large number of poor people had been ruined by it, and it had caused discomfort to all. The whole of the district there was adverse to section 33, and would be glad to see it mitigated. It was almost impossible to replace some of the habitations that had been pulled down so as to be of equal use and advantage to the occupiers. There was a large number of costermongers and men of that class in the district, and they could not live in model lodging-houses and carry on their business, because they required room to wash their vegetables and to stand their barrows. The result had been that many of these people had been driven away, and had gone to neighbourhoods where they could find the accommodation they required. The neighbourhood was ruined both from a sanitary point of view, and from a moral point of view, and many small respectable tradesmen and ratepayers had been pecuniarily ruined. In consequence of alterations to Gray's Inn-road, many of the other streets of the district and in Clerkenwell had become very much overcrowded.

Hammersmith Bridge.—At the last meeting of the Fulham Board of Works, it was announced that the Board had considered and determined this matter. There were three schemes, and the one selected was to widen and strengthen the bridge, and make a footway outside the piers. Mr. Cosh regretted that they were not to have a new bridge, and contended it would have been a wiser and cheaper policy. Mr. Smith said it would be money wasted.

Sir John Soane's Museum.—Charles Spencer Perceval, LL.D., Treasurer S.A., has been elected a Life Trustee of Sir John Soane's Museum, to fill the vacancy caused by the retirement of Professor Donaldson. We may repeat, what we have before said, that every facility is given to visitors at the Museum.

Lichfield.—For "In 1880 the population was 4,512" (p. 346, first column), read,—"*In* 1801," &c.

Westminster Town Hall.—On Wednesday afternoon the Baroness Burdett-Coutts laid the foundation stone of the Town Hall for the parishes of St. Margaret and St. John the Evangelist, Westminster. The building, which is to be of brick and stone, in the Renaissance style, has been designed by Messrs. Lee & Smith, architects, of Queen Victoria-street. The site is between Queen Anne's Mansions and Christ Church, close by the St. James's Park station of the District Railway Company. The building is intended to provide accommodation for the meetings of the ancient parishes of St. Margaret and St. John, including therein several new ecclesiastical parishes and the hamlet of Knightsbridge, for the meetings of the District Board of Works, and for the various offices of local administration. It will also contain a public hall capable of accommodating a thousand persons. The cost of the edifice will be about 25,000*l*. A view and plan of the buildings were published in vol. XXXIX. of the *Builder*, pp. 449, 451 (October 9, 1880).

Exhibition of Means and Appliances for the Protection and Preservation of Human Life.—This will be held at the Alexandra Palace, Muswell-hill (Science and Education Department), from Monday, the 26th of June, to Saturday, the 22nd of July, 1882, under distinguished patronage. The great public advantages to be derived from bringing together all the most recent improvements in apparatus and appliances for protecting and saving human life cannot be over-rated. It will, of course include apparatus employed for the prevention and extinction of fires, and means and appliances for rescuing life; protective provisions for dwellings and other houses; and engineering safety appliances. The exhibition will open on Monday, the 26th of June, and close on Saturday, the 22nd of July. No applications for space can be received after Saturday, the 10th of June.

Storage of Power.—For a lecture delivered lately at the London Institution, by Professor Ayrton, before a large audience, among other experiments, the lecture-theatre was lighted, a circular-saw driven, and a hoist, which was used for raising boxes, worked entirely by means of electricity produced the day before at the other side of London and transported to the Institution in Faure's accumulators. The total energy so conveyed was about 50,000,000 foot-pounds, or about twenty-five horse-power exerted for one hour.

"The Attitudes of Animals in Motion." Some of our readers may be glad to be told that Mr. Muybridge will lecture at Eton College on (this) Saturday; at the Society of Arts on Tuesday; and at South Kensington Science and Art Department on Wednesday, respectively, at eight p.m. It ought to be known that his lectures hitherto have been given entirely in the interests of science and art, his object being to awaken sufficient interest in the subject for a continuance of the investigations to a more exhaustive extent.

The Blackwell Hall Estate, South Durham.—Extensive alterations and additions are about to be made to this fine old seat of the Allan family, which, in consequence of the terms of the will of the late Mr. R. H. Allan, and the recent death of his widow, is inherited by Sir Henry Havelock-Allan, bart., who has appointed Mr. G. G. Hoskins, F.R.I.B.A., of Darlington, as his architect for the work.

The Elections at the Royal Institute of British Architects.—At the last meeting of the Institute ninety-one Associates (instead of thirty-three) were elected. Ninety-five were put up, of whom four were blackballed. We have reason to believe that a considerable number of names have been sent in for election under the compulsory examination clauses.

Royal Society of Painters in Water Colours.—At the annual general meeting held at the Gallery of the Society on Monday, the following artists were elected Associate-Exhibitors:—Miss Constance Phillpott, and Messrs. R. Beavis, C. Gregory, S. J. Hodson, and J. J. Hardwick.

Changes.—It was announced in Friday's *London Gazette* that Messrs. Hetherington & Oliver, architects and surveyors, of Carlisle, have dissolved partnership. The practice of Mr. J. C. Hetherington will in future be carried on at 14, Bank-street, Carlisle.

Kensington.—The mansion built by Baron Grant is to be taken down, and about seventy houses, we understand, will be built on the land. Seven of them will front the high road. The designs for some of them are already made.

An Ornithological Danger to Bridges.—In foreign climes the engineer has much to contend against. Elephants pull down telegraph-poles; monkeys short circuit wires; white ants devour sleepers; snakes bite him; scorpions sting him; natives rob him; indigenous labour carries wheelbarrows on its head with two shovelfuls of earth, and holds that it does well. He is starved, and roasted, and roundly abused. Taking one thing with another, his life is not a happy one. In certain districts it is worse than in others; thus white ants may be found superadded to scorpions in some places, while snakes and tigers go together in others; and in South America a danger appears to exist about which nothing has been heard hitherto. Mrs. M. G. Mulhall has written a very amusing book published by Stanford last year, and entitled, "Between the Amazons and Andes; or, Ten Years of a Lady's Travels in the Pampas, Gran Chaco, Paraguay, and Matto Grosso." From Mrs. Mulhall we learn that on the line of the San Louis Railway the ostriches are so numerous as to cause much trouble; "for whenever a workman left any bolt or screw out of his hand, were it only for a moment, it disappeared, being swallowed up by these birds, and one of the engineers declared that they even went so far as to pick the bolts out of the iron bridges if they were left by chance unriveted"! As no one ever heard of an engineer telling an untruth, especially to a lady, it must be taken for granted that this is true; but certain speculations arise in the mind which has absorbed such facts. What, for example, we may ask, is the biggest bit of iron an ostrich can get down? Could a large one manage to swallow a riveter's hammer? Given sufficient time, could an ostrich get out a rivet which had been closed, and swallow it? How many ostriches would be required to eat up a lattice bridge, 100 ft. span, in a year, giving them a fair chance at it?—*The Engineer.*

Carlisle.—The workhouse hospital is about to be considerably enlarged. The Board of Guardians have approved plans prepared by Mr. Geo. D. Oliver, architect, Carlisle.

TENDERS

For additions to the Beulah-road schools, Thornton Heath, for the Croydon School Board. Messrs. Rutley & Blackwell, architects. Quantities supplied:—

J. Hitchcock	£3,745 0 0
Ward	3,248 0 0
J. & C. Bowyer	3,245 0 0
J. W. Sawyer	3,172 0 0
F. Higgs	3,170 0 0
Coles & Bates	3,150 0 0
Ounstead	3,013 0 0
R. G. Battley	2,997 0 0
H. Loe	2,990 0 0
Hearle & Son	2,979 0 0
Smith & Buller	2,963 0 0
Hollidge & Stuart	2,960 0 0
F. Warr	2,946 0 0
Holliday & Greenwood	2,879 0 0
Langley & Son	2,850 0 0
Seal, Bros.	2,765 0 0
Smith & Son	2,749 0 0
G. Huey	2,693 0 0
S. Page	2,650 0 0
W. Marriage (accepted)	2,513 0 0
Philby & Son	2,435 0 0

For the erection of the Trade and Mining School, for the Society of Merchant Venturers, Bristol. Mr. E. C. Robins, architect:—

G. W. Booth & Son, London	£35,351 0 0
J. E. Davis, Bristol	34,345 0 0
H. Lovatt, Wolverhampton	34,300 0 0
P. Horsman & Co., Wolverhampton	33,490 0 0
(Unsigned), Bristol	32,476 0 0
W. Church, Bristol	31,964 0 0
Lewis & Edbrooke, Bristol	31,835 0 0
W. Cowlin & Son, Bristol	31,440 0 0
Wilkins & Son, Bristol	30,750 0 0
W. Veall, Bristol	30,144 0 0
Stephens & Bastow, Bristol	29,800 0 0
E. Howell & Sons, Bristol	29,778 0 0
H. A. Forse, Bristol	29,303 0 0
Brock & Bruce, Bristol (accepted)	28,698 0 0

Accepted for engine-bed and general contract, including fixing pillars, beams, and lintels, at Mather-lane Mill, Contract No. 2. Messrs. Bradshaw & Gass, architects, Bolton:—

G. Woods & Son, Bootle, near Liverpool.
Castings.
Howarth & Cryer, Bolton.
Wrought Ironwork, Fireproofing, and Asphalting.
Homan & Rodgers, Manchester.

For rebuilding the Old Queen's Head public-house, in the Stockwell-road, for Mr. Frank Wells. Mr. Henry Nixon, architect:—

Cox	£2,620 0 0
McLachlan	2,550 0 0
Stimpson & Co.	2,400 0 0
Heath	2,398 0 0
Maxwell Bros.	2,397 0 0
Tverman	2,310 0 0
Pack Bros.	2,297 0 0
Taylor	2,273 0 0

For alterations at the Lord Nelson public-house, Bishopsgate-street Without:—
Spencer & Co. (accepted).

For making up Selborne and Church roads, Walthamstow, for the Local Board. Mr. G. B. Jerram, C.E., surveyor:—

Currall & Lewis	£1,108 9 7
Wm. Porter	1,097 17 1
John Bell	1,088 17 1
McDowall & Dawson	1,069 15 9
G. Acock	1,058 0 0
Wilson & Stoddard	1,050 15 0
Eli Wilson (accepted)	1,039 0 0
J. Bloomfield (informal)	976 0 0

For the erection of (carcase only, and exclusive of main front) studio and business premises, Exeter, to be known as "Ye Luckie Horse-Shoe," for Mr. Harry Hems. Mr. R. Medley-Fulford, architect:—

H. Phillips, Exeter	£1,450 0 0
Stevens & Bastow, Bristol	1,000 0 0
D. Reynolds, Exeter	900 0 0
Stephens & Son, Exeter	750 0 0
J. R. Gibbard, Exeter (accepted)	731 0 0
Webber, Heavitree (too late)	720 0 0

For two cottages and stables at Ore, Hastings, for Mr. O. Wickens. Mr. D. Jones, architect:—

James Stubbenfield, Ore	£549 0 0
Upton & Son, Ore	440 0 0
Fred. Thorp, Ore	388 0 0
Wm. Small, Ore (accepted)	320 0 0

For constructing drains and picking up and repairing roads on the Norbury Estate, Thornton Heath, for the Directors of the Birkbeck Freehold Land Society. Mr. S. B. Grosvenor, surveyor:—

P. Pound (accepted)	£310 0 0

For erection of schools for 750 children for the Kingston-upon-Hull School Board, in Buckingham-street, Holderness-road, including out-offices, fence-walls, and asphalted play-grounds. (Area of site, 3,333 square yards.) Mr. W. Botterill (Botterill, Son, & Bilson), architect. Quantities supplied:—

H. Grassby	£7,190 0 0
B. Musgrave, jun.	6,450 0 0
J. F. Skinner	6,399 0 0
R. Sergeant	6,240 0 0
Alfred Brown	6,228 0 0
G. Jackson & Son	6,150 0 0
J. Drury	6,093 0 0
T. T. Dickinson	6,060 0 0
M. Harper	5,917 6 0
Hockney & Liggins (accepted)	5,899 0 0
Executors of T. Southern (withdrawn)	5,666 3 0
R. Habbershaw & Son (withdrawn)	5,285 19 0

For Erdington Sewerage Works. Mr. E. Pritchard, engineer. Quantities by E. J. Purnell:—

Contract No. 1—Cast Iron, Earthenware and Brick Sewers, and other Works.

T. Nelson & Co., York	£15,144 0 0
J. M. Smith, Westminster	14,600 0 0
G. Cowdery & Sons, Newent, Gloucester	14,401 7 0
Fotherby & Son, Burnley	13,996 3 10
Hill, Bros., Beckenham	13,405 0 0
John Jevons, Dudley	13,284 6 7
J. M. Pickthall, Bromsgrove	13,110 0 0
John Fell, Leamington	12,900 0 0
Wm. Holland, Leicester	12,823 0 0
H. Hilton, Birmingham	12,730 0 0
Currall & Lewis, Birmingham	12,378 0 0
A. Palmer, Birmingham	12,194 0 0
G. Law, Kidderminster (accepted)	11,993 0 0

For repaving the Half-acre, Brentford, with 3-in. York paving, or patent Victoria Stone, at per foot, for the Brentford Local Board. Mr. F. W. Lacey, surveyors:—

	3-in. York.	Victoria.
Loudale & Brooks	10½d.	10d.
J. Dorey	10½d.	9½d.
W. G. Coal	9½d.	9½d.
Nowell & Robson	10½d.	9d.
Patent Victoria Co.*	10½d.	9d.
Wheeler & Hindle	9½d.	9d.

* Accepted for Victoria stone.

For repairs to Grove-road and Enfield-road, Brentford, for the Brentford Local Board. Mr. F. W. Lacey, surveyor:—

	Footpath, Enfield-road.	Grove-road.	Enfield-road.
W. Seward	£59	£119 10	£183 0
H. Spicer	*60	115 0	*175 0
James Neal	56	*80 0	180 16

* Accepted.

For concrete wall, &c., in Bollo-lane, Brentford, for the Brentford Local Board. Mr. F. W. Lacey, surveyor:—

Jas. Field	£50 8 0
E. Anthony (accepted)	49 10 0

For the erection of house and stables at Woodford, for Mr. E. R. Evans. Messrs. Hooper & Lewis, architects. No quantities:—

North Bros.	£3,318 0 0
Robson	3,248 0 0
Hoskins	2,989 0 0
Wells	2,949 0 0
F. G. & K. Vigor (accepted)	2,765 0 0

For alterations to the High Admiral, Marylebone. Mr. Capell, architect:—

Salt	£374 0 0
Kosten	374 0 0
Marr	324 0 0
Shurmur (accepted)	295 0 0

For the excavation and concrete for the proposed new Council Chamber, Guildhall, for the Corporation of the City of London. Mr. Horace Jones, architect. Quantities by Messrs. William Reddall & Son:—

Chappell	£3,475 0 0
Lucas	2,943 0 0
Trollope & Sons	2,787 0 0
Conder	2,503 0 0
Webster	2,495 0 0
Ashby & Horner	2,468 0 0
Mowlem & Co.	2,390 0 0
Holland & Hannen	2,316 0 0
Nightingale	1,940 0 0

For the Sittingbourne and Milton Infectious Joint Hospital. Mr. W. Leonard Grant, architect:—

For erecting Front Boundary Wall, with Iron Fencing thereon, and Entrance-gates, &c.

W. J. Beaumont, Milton	£305 0 0
C. Foad, Whitstable	315 10 0
J. Seager, Borden	320 10 0
Wood & Son, Peckham (accepted)	291 0 0

For Wrought-Iron Fencing to three sides of the Hospital grounds.

	Per Yard.
Bragg & Son, Lambeth	£1 2 9
Marshall, Birmingham	1 0 0
Stout, London	0 11 1
Barford, Maidenhead	0 11 0
Drury & Biggleston, Canterbury	0 9 9
Vowles, Milton	0 9 6
Rowe, Edmonton	0 8 6
Weeks & Son, Maidstone	0 8 4
Wright Bros, Leicester	0 8 0
White & Son, London	0 8 0
M'Laren & Co., London	0 8 0
Chittenden, Knight, & Co., Sittingbourne	0 8 0
Balls, Garrett, & Co., Maidstone	0 7 6
Warden, Birmingham	0 7 6
Johnson Bros. & Co., London	0 7 3
F. Bird & Co., London	0 7 1½
Riding, Bury	0 7 0
Hernulewich, London	0 6 9
Faulkner & Sons, Hersham, Surrey	0 6 8
Tett & Hussey, Sittingbourne	0 6 8
Hydes & Wigfull, Sheffield	0 6 4
J. & C. Brettel, Worcester	0 6 4
Wood & Sons, London	0 6 0½
Furner, Sittingbourne	0 6 0
Bushnell, Maidstone	0 5 11
Hill & Smith, Staffordshire	0 5 11
Simpson & Wood, Darlaston (accepted) *	0 4 9

* And 9*d.* 15s. for fixing the whole.

For bank building, for the Capital and Counties Bank, Hungerford, Berks. Mr. R. King, architect:—

Wooldridge & Co., Hungerford	£1,450 0 0
Spencer & Co., London	1,424 0 0
Hoskins & Son, Hungerford	1,196 0 0

For alterations to No. 4, Otway-villas, Upper Norwood. Mr. R. King, architect:—

Beale	£378 13 0
Nightingale	273 0 0
Poole	232 8 0
Spencer & Co.	220 0 0

For proposed additions, alterations, and repairs, exclusive of fittings, to premises No. 1, Albert-place, Marlborough-road, Chelsea, for Mr. A. Blake. Mr. Wm. Eversden, architect:—

Foster	£1,250 0 0
Stuart	1,194 0 0
Atkins	1,050 0 0
Pryor	973 0 0

For painting, decorating, &c., the interior of residence, Park Villa, Hampton Hill, Middlesex, for Mr. J. Jewell. Mr. Wm. Eversden, architect:—

Richardson	£181 0 0

For new factory for proprietors of Dr. Ridge's Food, at Boleyn-road, Stoke Newington:—

Thomerson	£3,639 0 0
J. Auley	3,570 0 0
K. Runnacles	3,496 0 0
C. Forrest	3,278 0 0
W. Shurmur	2,943 0 0

For the erection of a stabling, dwelling-house, &c., at Gorham-place, Notting Dale, for the London General Omnibus Company. Mr. Alfred Tosh, architect. Quantities by Mr. Bolton:—

Toser	£4,019 9 0
Apsey & Son	3,872 19 0
Lufford	3,654 0 0
Greenwood & Son	3,380 0 0
Richeirs & Mount	3,208 0 0
Mark Gentry	3,250 0 0
Parker	3,143 0 0
Barch & Moore	3,135 0 0
Garrud (accepted)	2,983 0 0

For additions and alterations at the George Tavern, George-lane, Woodford, for Mr. Back. Mr. H. C. Cotton, architect:—

Belcher	£2,100 0 0
Robson	1,784 0 0
Laughton	1,668 0 0
Buckle	1,624 0 0
Marr	1,607 0 0
Shurmur	1,584 0 0
Cocks	1,573 0 0
Yardley & Sons	1,493 0 0
Hewlett	1,405 0 0

For building eight villa residences, and one stable with rooms over, for Mr. R. Maynard:—

Vickery	£4,410 0 0
Gardner & Letch	3,800 0 0
Martin	3,525 0 0
Balsam Bros.	3,200 0 0
Smith	3,200 0 0
Captey	3,120 0 0
Brightmore	2,996 0 0
Reed	2,940 0 0
England & Thompson (accepted)	2,535 0 0

For alterations at the Viaduct Tavern, Newgate-street, for Mr. Hublett. Mr. H. I. Newton, architect:—

Godden	£350 0 0
Wood	339 0 0
Langmead & Way (accepted)	329 0 0

For sundry alterations and repairs to No. 58, Pembridge-villas, Bayswater. Mr. J. Johnson, architect:—

Dove Bros.	£585 0 0
Faulkener	457 0 0
Stimpson & Co.	445 0 0

For building warehouse, for Mr. Glover, Upper Clapton. Mr. Whicher, architect:—

Shurmur	£495 0 0
Boyce	477 0 0
Harper	467 0 0
Wood (accepted)	448 0 0

For alterations and additions to No. 1, Bolton-row, Mayfair, for Mr. R. Boyd, M.D. Mr. Geo. Ashby Lean, architect:—

Bolding	£947	0	0
Myring	944	18	6
Adamson & Son	815	0	0
Toms (accepted)	723	0	0

For additions and alterations to Woolley Hall, Maidenhead. Mr. J. Young, architect. Quantities supplied by Messrs. Arding, Bond, & Buzzard:—

Holland & Hannen	£16,730	0	0
Woods, Gloucester	16,577	0	0
Patman & Fotheringham	16,300	0	0
Brass	15,183	0	0
Morter	14,970	0	0
Chappell	14,963	0	0
Estcourt, Worcester	14,550	0	0
E. Lawrence	14,289	0	0
Parnell, Rugby	13,912	0	0
Silver & Sons	13,887	0	0

For extension and completion of St. Boniface Church, Union-street, Whitechapel. Mr. J. Young, architect. Quantities supplied by Messrs. Arding, Bond & Buzzard:—

E. Lawrence, London (accepted)	£1,105	0	0

For works in additions and alteration to premises in Tollington-road, and Lister-mews, Holloway-road, for Messrs. Jones, Bros. Mr. R. M. Shaw, architect. Quantities supplied by Mr. C. Hanger:—

	Contract.	Shop.
Drew & Cadman	£11,915	£841
Yardley & Son	10,398	689
Ashby, Bros.	10,342	798
Brass	10,286	830
Grover	10,164	779
Taylor & Parfitt	10,099	819
Colls & Son	9,995	739
Williams & Son	9,930	750

For the erection of three villa residences and two shops, Kenley, Surrey. Mr. R. Martin, architect:—

No. 22a.

Harman & Baker	£900	0	0
Battley	829	0	0
Loe	797	0	0
Andrews	792	0	0
Fuller & Boorer	792	0	0
F. G. & R. Vigor (accepted)	780	0	0
Ennor Julian & Co. (too late)	720	0	0

No. 22b.

Harman & Baker	£740	0	0
Loe	731	0	0
F. G. & R. Vigor	725	0	0
Fuller & Boorer	714	0	0
Battley	695	0	0
Andrews	653	0	0
Ennor Julian & Co. (too late)	620	0	0

No. 24.

Ennor Julian & Co. (too late)	£1,620	0	0
Andrews	1,571	0	0
F. G. & R. Vigor	1,518	0	0
Harman & Baker	1,407	0	0
Loe	1,295	0	0
Battley	1,289	0	0
Fuller & Boorer (accepted)	1,230	0	0

Two Shops.

Ennor Julian & Co. (too late)	£1,690	0	0
F. G. & R. Vigor	1,460	0	0
Harman & Baker	1,327	0	0
Battley	1,297	0	0
Fuller & Boorer	1,297	0	0
Leay	1,251	0	0
Loe (accepted)	1,193	0	0

For new schools, for Lindfield School Board. Mr. Simpson, architect:—

Cornwell, Eastbourne	£5,350	0	0
J. & S. Bowyer, Dulwich	4,969	0	0
Jordan, Edenbridge	4,997	0	0
Reynolds, jun., West Brighton	4,993	0	0
Finch, Hayward's Heath	4,950	0	0
Taylor, Brighton	4,736	0	0
Andrews, Lindfield	4,600	0	0
Woolgar & Sons, Horsham	4,500	0	0
Anscombe, Lindfield	4,450	0	0
Norman, Burgess Hill	4,381	0	0
Longley, Worth and Crawley	4,337	0	0
Peters & Redford, Horsham	4,275	0	0
Box, Ardingly	4,199	0	0
Downer, Burgess Hill	4,150	0	0
Morris, Ashhurst Wood	4,000	0	0
Beard & Foster, East Grinstead	3,351	0	0

For alterations to No. 281, Edgware-road, for Mr. W. Bowron. Mr. C. W. Richardson, architect:—

Woodward	£680	0	0
W. H. Butcher (accepted)	625	0	0

For Wilson's Grammar School, Camberwell. Mr. E. B. Robson, architect:—

Lathey, Bros.	£5,990	0	0
Tongue	5,438	0	0
W. Downs	5,312	0	0
Kirk & Randall	5,280	0	0
Higgs & Hill	5,180	0	0
Jerrard	5,273	0	0
Oldrey	5,270	0	0
Brass	5,197	0	0
Wall, Bros.	4,996	0	0
Nightingale	4,870	0	0

For extension, new roof, and repairs to the Parish Church of St. James, Great Grimsby. Mr. R. J. Withers, architect:—

R. Hollingworth, Grimsby	£1,999	0	0
Riggall & Hewins, Grimsby	1,887	0	0
John Stark, Louth	1,836	0	0
Willows & Roebuck, Grimsby	1,787	0	0
S. Chapman, Grimsby	1,755	15	6
W. Davison, Shildon-by-Darlington (accepted)	1,573	0	0

TO CORRESPONDENTS.

C. M. (the charge would vary according to the amount of estimate and other circumstances. It might range from 1½ to 2½ *per cent.*).—T. B. (sorry we cannot assist).—W. T. T. (yes, under certain circumstances).—Pious (the rebuilding is now going on).—M. M. (thanks).—R. A. (shall appear).—J. G. (next week).—W. H. L. (next week).—P. (under consideration).—A. S.—G. L.—E. P.—S. B. G.—C. S.—J. R. I.—L. S.—C.—Mr. R.—T. E.—H. W. & Co.—W. H. L.—A. S.—G. A. L.—T. & P.—A. J. H.—R. S.—R. M.—J. U.—T. M. F.—P. M.—W. J. W. & Co.—E. O.—W. G. E.—D. J.—H. & Co.—M. O.—H. C.—S. & Co.—G. W. & Son.—G. G. H.—J. P. S.—W. & S.m.—H. T. & Co.—S. A.—F. B. P.—E. H. S.—J. C. H.—W. S.—F. G. & R. V.—H. R. & R.—S. S.—E. C.—H. I. N.—W. K.—C. M.—J. P.—E. F. W. M.—S. & Co.—W. H. A.—F. M. & S n (try Rendle's "Electric" Paint Remover).

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

NOTICE TO ADVERTISERS.

GOOD FRIDAY.

"THE BUILDER" for the week ending APRIL 8th will be published on THURSDAY MORNING, 6th inst. Advertisements for insertion in that issue must therefore reach the Office before **THREE** p.m. *on* **Wednesday,** *the* **5th.**

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DOUGLAS FOURDRINIER, Publisher,
Addressed to No. 46, Catherine-street, W.C.

Advertisements for the current week's issue must reach the office before THREE o'clock p.m. on THURSDAY.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to Advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

TERMS OF SUBSCRIPTION.

"THE BUILDER" is supplied *direct* from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum, prepaid. Remittances payable to DOUGLAS FOURDRINIER, Publisher, 46, Catherine-street, W.C.

Best Bath Stone.
WESTWOOD GROUND,
Box Ground, Combe Down,
Corsham Down,
And Farleigh Down.
RANDELL, SAUNDERS, & CO., Limited,
Corsham, Wilts. [ADVT.

Box Ground Stone
Is the best for use in all exposed positions, being a well-known and tried weather stone.
50,000 feet cube in stock.
PICTOR & SONS,
Box, Wilts. [ADVT.

Doulting Freestone and Ham Hill Stone of best quality, in blocks, or prepared ready for fixing. An inspection of the Doulting Quarries is respectfully solicited; and Architects and others are CAUTIONED against inferior stone. Prices, delivered to any part of the United Kingdom, given on application to CHARLES TRASK, Norton-sub-Hamdon, Ilminster, Somerset. — Agent, Mr. E. WILLIAMS, 73, Charlotte-street, Portland-place, W. [ADVT.

Doulting Stone and Ham Hill Stone, of best quality. Prices and Estimates, including delivery to any Station, on application to STAPLE & HANN, Quarrymen, Stoke-sub-Hamden, Ilminster. Agent, Mr. E. CRICKMAY, Langbourn-chambers, 17, Fenchurch-street, E.C. [ADVT.

Asphalte.
Seyssel, Patent Metallic Lava, and White Asphaltes.
M. STODART & CO.
Office:
No. 90, Cannon-street, E.C. [ADVT.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 38, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. [ADVT.

Immense quantities of
DRY WAINSCOT,
DRY MAHOGANY,
DRY WALNUT,
in all thicknesses.
B. J. HUDSON & SONS,
Whitfield-st., W., and Great Peter-st., S.W., London. [ADVT.

J. L. BACON & CO.
MANUFACTURERS OF
IMPROVED HOT-WATER APPARATUS,
FOR WARMING AND VENTILATING
Private Houses, Churches, Schools, Hospitals, Manufactories, Greenhouses, &c.
OFFICES AND SHOW-ROOMS:—
No. 34, UPPER GLOUCESTER PLACE, DORSET SQUARE, LONDON, N.W.
Illustrated Pamphlet on "Heating" post free for Twelve Stamps.

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DAYLIGHT REFLECTORS OF EVERY DESCRIPTION,

ALSO

ARTIFICIAL LIGHT REFLECTORS.

WHY BURN GAS?—CHAPPUIS' REFLECTORS DIFFUSE DAYLIGHT.—They are exclusively adopted by and fitted at Buckingham Palace, all H.M. Government Offices, Houses of Parliament, H.M. First Commissioner of Works, the Metropolitan Board of Works, British Museum, South Kensington Museum, Royal Institution, Guildhall Museum, on board H.M. Ships, also Railway Companies' Offices, Hospitals, Institutions, Banks, Insurance Offices, Manufactories, Private Houses and generally from Noblemen's Mansions to Artisans' Workshops. 30,000 in use in London alone. Patronised by leading Architects, Engineers, Contractors, &c., &c.

N.B.—For Prospectuses and Diagrams, address Stamped Envelope to

P. E. CHAPPUIS, Patentee and Manufacturer, 69, FLEET-STREET, LONDON.

NOTICE.—The POLYGONAL REFLECTOR (Latest Patent) FOR ARTISTIC and PICTURE GALLERIES.
Its construction allows of the angle of light being readily altered so as to reflect in any desirable direction.